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Record of Decision:

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EPA Superfund
Record of Decision:

Rutledge Property Site,
Rock Hill, SC

RECORD OF DECISION

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

RUTLEDGE PROPERTY SUPERFUND SITE

ROCK HILL, YORK COUNTY,
SOUTH CAROLINA

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ATLANTA, GEORGIA

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Rutledge Superfund Property Site
Rock Hill, York County, South Carolina

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Rutledge Property Superfund Site (the Site), located in Rock Hill, York County, South Carolina, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. [Para][Para] 9601 et seq., and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300 et seq. This record of decision is based on the administrative record for this Site.

The State of South Carolina concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this record of decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

This remedial action addresses groundwater contamination.

The major components of the selected remedy include:

Extraction of contaminated groundwater;

Direct discharge to POTW of extracted groundwater;

Deed restrictions;

Long-term groundwater monitoring; and,

Additional work during the remedial design phase including: determining the relationship of the contamination detected in the private wells to the contamination detected in the on-site monitoring wells, collecting additional background surface soil samples to confirm that the variance in manganese levels is consistent with the environmental setting, and collecting additional surface water and sediment samples to determine if the selected background sample is representative of true background conditions.

STATUTORY DETERMINATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. This remedy utilizes permanent solutions to the maximum extent practicable for this Site. The selected groundwater remedy satisfies the preference for treatment for this Site.

Since selection of this remedy will result in contaminated groundwater remaining on-site above health-based levels until the remedial action is complete, a statutory five (5) year review will be performed after commencement of the remedial action to insure that the remedy continues to provide adequate protection of human health and the environment.

June 27, 1994
Date

John H. Hankinson, Jr.
Regional Administrator

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RUTLEDGE PROPERTY SUPERFUND SITE
ROCK HILL, YORK COUNTY, SOUTH CAROLINA

1.0 SITE LOCATION AND DESCRIPTIO

The Rutledge Property Site (the Site), is a 4.5 acre parcel located between U.S. Highway 21 (Cherry Road) and Farlow Street, just east of Cranford Street in Rock Hill, York County, South Carolina (Figure 1). The Site's geographic coordinates are 34 57'50" north latitude and 80 59' 55" west longitude.

The property occupies two (2) plats of land: one parcel, which is owned by William C. Rutledge, Jr., encompasses the eastern portion of the Site; and the second parcel, which is owned by First Union National Bank of South Carolina, encompasses the western portion of the Site (Figure 2). The Site is bounded by Cherry Road and the Rock Hill Mall to the south; First Union National Bank of South Carolina and fast-food restaurants to the west; residential property (single-family dwellings) and an unnamed stream to the

north; and the York Shopping Plaza to the east.

On-site drainage is controlled by topography and man-made drainage features. The Site is drained by an unnamed stream, which originates on the northern portion of the Site. There is another smaller drainage ditch that intersects the larger unnamed stream. The unnamed stream receives the majority of surface water from the 72-inch storm drain. The origin of surface water that flows through the 72-inch storm drain includes open land south of the Rock Hill Mall and surface water runoff from the Rock Hill Mall property and Cherry Road. Another 40-inch storm drain also intersects the unnamed stream, in the same area as the 72-inch drain. Water from this smaller drain, originates west of the Site. Site runoff and surface water from the drainage ditch also flow into the unnamed stream. Presently, all surface water that reaches the unnamed stream flows along its course in a northeasterly direction for 1.9 miles and discharges into the Catawba River. Elevations across the Site vary from 606 feet above mean sea level (msl) in the southern and western parts of the Site, to 590 feet above msl in the northern portion of the Site.

A majority of the Rock Hill residents receive potable water from the City of Rock Hill utilities. The residents who do not receive their potable water from the City of Rock Hill, use both private or community wells.

<Figure>

<Figure>

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Rutledge Property (Rock Hill Chemical Company) Superfund Site (the Site) is located on North Cherry Road, in Rock Hill, York County, South Carolina. The Site covers approximately 4.5 acres of land in a light commercial and residential area, across from the Rock Hill Mall. From 1960 through 1964, the Site was the location of the Rock Hill Chemical Company (RHCC), a facility where paint solvents were distilled and reportedly, textile dy products were recovered. While RHCC was operating, residue from RHCC's distillation still bottoms, drum bottoms, and storage tank bottoms, were placed in piles on the surface of the facility property and later covered with fill dirt and construction debris. During its operation, RHCC accepted waste oils and solvents from generators, separated them, and sold the extracted solvents and oils back to the generators.

The reclamation process used a single pot still, a filter press, and a small steam generator. In this operation, waste fluids were reprocessed by separating solvents from the oil phase, filtering the oil through a charcoal

filter press, and repackaging the reclaimed oil for distribution to clients. The waste fluids initially were contained in drums, but as the process expanded, above ground storage tanks were added as needed.

Paint sludges, textile dye products, still bottoms, and other wastes generated during the reclamation process, were stored in piles placed directly onto the ground. In some cases, waste products were buried at the Site. Still bottoms generated from the reclamation process, were incorporated into various layers of fill dirt and construction debris was used to fill low areas of the property to help support heavy machinery. Tanks that were used to hold liquid wastes before reclamation had, on occasion, leaked onto the ground, creating a potential source of contamination. One such leak was caused by a faulty tank valve. Another release occurred when a valve on one of the tanks was deliberately opened by a trespasser, which caused chemicals to spill onto the ground.

By late 1961, the demand by RHCC clients for reclaimed oil diminished, and a surplus remained in inventory. Much of this residual inventory was consumed by RHCC as fuel for its steam generator until the company ceased operations late in 1964, or was reprocessed and sold to various customers. In October 1964, a fire at the facility caused drums of oil and chemicals to explode, releasing their contents into the environment. After the fire, the RHCC partnership was dissolved. Since that time, no other industrial activity has taken place at the Site.

In 1984, First Federal Savings Bank began to construct a branch office on the lots it purchased in 1972. The bank had made no use of the property for the previous twelve (12) years it had owned the land. During construction activities, it was discovered that the property was contaminated. At the time of the 1984 discovery, First Federal Savings Bank promptly notified the State of South Carolina Department of Health and Environmental Control (SCDHEC) and employed consultants to analyze the property and determine the extent of the contamination.

First Federal Savings Bank's consultants discovered distillation still bottoms, metal drums, and other hazardous substances buried beneath the surface of First Federal Savings Bank's property. Under the supervision of SCDHEC, First Federal Savings Bank conducted a removal action on its property which was completed in November 1986, and received SCDHEC approval in December 1986.

During the 1986 removal action, the previously contaminated portion of the property was excavated, the contaminated soil was deposited in an approved landfill, and the affected portion of First Federal Savings Bank's property was covered by a clay cap. In late 1987, EPA's Emergency Response Team use CERCLA funds to remove approximately 46,000 gallons of waste from the above ground tanks, along with an unknown amount of contaminated soil. This material was transferred to a RCRA-regulated facility.

Over the years, prior to the remedial investigation, there have been fourteen (14) sampling investigations at the Site. These investigations

were directed by Federal, State and local agencies in an attempt to characterize and determine the nature and extent of environmental contamination. In these previous studies, samples were collected from soil, groundwater, surface water, sediment, as well as waste samples from drums and five (5) above-ground storage tanks. Analytical results of these samples have confirmed the presence of contaminants in all of the media sampled.

Based upon this information, EPA proposed the Site for inclusion on the National Priorities List (NPL) on June 24, 1988, and EPA finalized the Site on the NPL on February 21, 1990, with a hazard ranking score of 40.29.

On May 23, 1991, EPA issued special notice letters and general/special notice letters pursuant to Section 122(e) of CERCLA, 42 U.S.C. [Para] 9622(e), along with CERCLA Section 104(e), 42 U.S.C. [Para] 9604(e), information requests to all potentially responsible parties (PRPs). The special notice letters and general/special notice letters offered the PRPs the opportunity to perform, finance or otherwise participate in the remedial investigation/feasibility study (RI/FS) activities at the Site.

On August 21, 1991, however, the PRPs notified EPA that they were not going to sign the Administrative Order on Consent for the RI/FS. EPA notified the PRPs that EPA was conducting the RI/FS utilizing money from the Hazardous Substance Superfund. Field work for the RI began in March 1992.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

An information repository for the Site, which includes the Administrative Record, was established at the York County Library in March 1992, and is available to the public at both the information repository maintained at the York County Library, 138 East Black Street, Rock Hill, South Carolina, 29731, and at EPA, Region IV Library, 345 Courtland Street, Atlanta, Georgia, 30365. A mailing list was established for the Site and a fact sheet was mailed in March 1992. The fact sheet outlined the following: the objectives of the RI, a summary of the Site history, the various opportunities for public involvement (including Technical Assistance Grants), the location of the information repository, and an announcement of a public meeting that was held in Rock Hill on March 19, 1992.

EPA issued a proposed plan in February 1994, which outlined EPA's preferred alternative. A public comment period for the proposed plan was held from February 22, 1994, to March 24, 1994. EPA held a public meeting on March 1, 1994, where EPA representatives answered questions regarding the Site and the remedial alternatives under consideration, which were outlined in the proposed plan. EPA received a request for an extension to the public comment period, and extended the comment period to April 25, 1994.

EPA received oral comments during the March 1, 1994, public meeting, and written comments during the sixty (60) day public comment period. Response to the comments received by EPA are included in the Responsiveness Summary (Appendix A).

This ROD presents EPA's selected remedial action for the Site, chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The remedial action selection for

this Site is based on information contained in the Administrative Record. The public and state participation requirements under Section 117 of CERCLA, 42 U.S.C. [Para] 9617, have been met for this Site.

4.0 SCOPE AND ROLE OF THIS ACTION WITHIN SITE STRATEGY

Two (2) removals, one in 1986, and the other in 1987, reduced the risk from exposure to contaminated soil as well as reduced the leaching of contaminants from the soil to the groundwater. This was confirmed during the remedial investigation. Therefore, according to the Baseline Risk Assessment, no additional cleanup of the Site soil is necessary.

The purpose of the remedial alternative selected in this ROD is to reduce potential future risks at this Site from exposure to contaminated groundwater. There is no unacceptable current risk present at the Site. The groundwater remedial action is expected to eliminate the potential future risks to an on-site resident, that potentially could use contaminated groundwater for potable water supply. This is the only ROD contemplated for this Site.

5.0 SUMMARY OF SITE CHARACTERISTICS

The RI investigated the nature and extent of contamination on and near the Site, and defined the potential risks to human health and the environment posed by the Site. A supporting RI objective was to characterize the Site-specific geology and hydrogeology. A total of sixty-five (65) soil samples, fifty-six (56) groundwater samples, seven (7) surface water samples, and seven (7) sediment samples were collected during the RI. Field work for the RI began in March 1992, during which soil and surface water samples were collected, and a well survey was conducted. Monitoring wells were installed and sampled from June to July 1992, along with several private wells. Additional monitoring wells were installed and sampled from December 1992, to January 1993. The final RI/FS report was completed in January 1994. Locations of groundwater samples from monitoring wells and private wells, surface soil, subsurface soil, surface water, and sediment samples are shown in Figures 3 through 6.

5.1 Meteorology

The Site is located in the Piedmont physiographic province and the Charlotte Belt geologic province of South Carolina. Summers are long with warm weather generally lasting from May to September. Winters are mild and relatively short with freezing temperatures occurring about half of the days in winter. Average annual daily maximum and minimum temperatures are 74 F and 50 F, respectively. The average annual rainfall amount is 46.7 inches

<Figure>

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and the annual evaporation rate is 41 inches resulting in a yearly net rainfall of 5.7 inches. The two-year, 24-hour rainfall amount is 3.25 inches.

5.2 Geologic and Hydrogeologic Setting

5.2.1 Geology/Soils

The Site is located in the Piedmont physiographic province and the Charlotte Belt geologic province of South Carolina. The Piedmont is a broad plateau ranging from 400 to 1200 feet above sea level. Piedmont areas are characterized by low, rounded, gently sloping hills having relatively deeply incised dendritic drainage patterns. Piedmont sites typically have a thick layer of highly weathered residual soil and weathered rock (saprolite) overlying competent bedrock.

Residual materials at the Site generally consist of sandy, clayey silt, fine sand and silt. The contact between the saprolite and bedrock typically is gradational and is often characterized by a zone of fractured rock material. Saprolite is weathered decomposed in-place rock which is characterized by its retention of the original fabric or structure of the parent bedrock. The residual soil and saprolite thickness in the Piedmont is variable, but may be greater than eighty (80) feet.

The Piedmont province is characterized by metamorphic rocks which have been intruded by igneous rocks. The metamorphic rocks of the Charlotte Belt include schist, gneiss, amphibolite, and metagabbro. Igneous rocks range in composition from granite to gabbro. Geologic mapping of the Rock Hill area indicates that the Site is underlain by gabbro. Unconsolidated soils consist of a surficial layer of alluvium underlain by saprolite. At the Site, the alluvium consists of black-to-grey to green-to-blue sandy, clayey

silt. The alluvium ranged in thickness from 5.5 to 9.0 feet. The underlying saprolite consists of green-to-tan-to-brown fine sand and silt ranging in thickness from 3.4 to 22 feet.

5.2.2 Hydrogeology

Information on the hydrogeology of the Site was obtained from the sixteen (16) monitoring wells installed during the RI and four (4) existing wells. Groundwater at the Site is first encountered in the unconsolidated soil zones overlying bedrock. The water table was encountered at depths ranging from approximately five (5) feet to approximately eight (8) feet below land surface. The direction of groundwater flow within both aquifers is toward Site surface water.

The ability for groundwater to move horizontally through the underlying aquifer system was evaluated using the hydraulic conductivity values determined from the rising head tests made in the soil and rock units. The average horizontal hydraulic conductivity of the soil aquifer ranged from 0.14 to 2.62 feet per day and averaged 1.07 feet per day. The horizontal hydraulic conductivity in the rock wells ranged from 0.08 to 58.2 feet per day and averaged 1.7 feet per day. Average hydraulic conductivities were calculated using a geometric mean.

The ability for groundwater to move vertically through the soil unit was evaluated by measuring the hydraulic conductivity of four (4) Shelby tube samples collected during the subsurface investigation. These Shelby tube samples were then sent to a geotechnical laboratory and tested for vertical hydraulic conductivity. The vertical hydraulic conductivity of the soil unit ranged from 1.7 x 10[-5] to 0.15 feet per day and averaged 1.45 x 10[-2] feet per day. As previously mentioned, the average value was calculated using a geometric mean.

The hydraulic gradient in the soil unit, based on the January 27, 1993, water level data, varies from 0.021 to 0.1 feet per foot and averages 0.044 feet per foot. Using an average horizontal hydraulic conductivity of 1.07 feet per day, an average hydraulic gradient of 0.044 feet per foot, and an average effective porosity of 0.20 (typical for silty material), the average horizontal groundwater seepage velocity for the soil aquifer is 0.24 feet per day.

The hydraulic gradient in the rock unit, based on the January 27, 1993, water level data, varies from 0.008 to 0.055 feet per foot and averages 0.024 feet per foot. Using an average horizontal hydraulic conductivity of 1.7 feet per day, an average hydraulic gradient of 0.024 feet per foot, and an effective porosity of 0.05 (typical for highly weathered gabbro), the average seepage velocity for the upper rock unit is 0.82 feet per day.

5.3 Nature and Extent of Contamination

Environmental contamination at the Site can be summarized as follows:

Groundwater Contamination. Sixteen (16) groundwater samples from temporary wells were collected and analyzed for selected parameters, prior to the installation of permanent monitoring wells. Ten (10) permanent monitoring wells were installed during the second phase of field work and were sampled and analyzed for all target compound list/target analyte list (TCL/TAL) parameters, along with three (3) previously existing monitoring wells and four (4) private wells (July 1992). Six (6) additional wells were installed during the third phase of field work (December 1992 to January 1993). All sixteen (16) permanent

monitoring wells were then sampled and analyzed for all TCL/TAL parameters, along with the three (3) previously existing monitoring wells and the four (4) private wells (January 1993).

Four (4) contaminants of concern (COCs), trichloroethene (TCE), 1,2-dichloroethene, vinyl chloride, and manganese, were detected in the groundwater. These COCs were determined in the Baseline Risk Assessment which is described below in Section 6.0.

TCE was the most common volatile organic contaminant as it was detected in three (3) groundwater samples. 1,2-dichloroethene was also detected in two (2) groundwater samples. The highest volatile organic contaminant detected was TCE at 84,000 micrograms/liter (g/1), which is well above the maximum contaminant level (MCL) of 5 g/l for this contaminant. The highest detection level of 1,2-dichloroethene was 1200 g/l, which is also well above its MCL of 70 g/l. Vinyl chloride was detected at 26 g/l, which exceeds its MCL of 2 g/l, and the highest detection for manganese was 3600 g/l, which greatly exceeds the risk-based cleanup level of 200 g/l.

Due to the fact that very low levels of Site-related contamination were detected in the private wells (Figure 3), further evaluation of the construction characteristics of the private wells will be required in the remedial design. The primary private wells of concern are PW-03 and PW-04. Two off-site private wells, PW-01 and PW-02, may also be studied. If the screened depths of these private wells exceed the screened depths of the on-site monitoring wells, additional monitoring wells may be required. These additional monitoring wells will be used to fully demonstrate that there is no Site related aquifer contamination, at unacceptable risk levels, at the deeper screened depths.

Surface and Subsurface Soil Contamination. A total of sixty-five (65) soil samples were collected and analyzed for all TCL/TAL parameters. There were no contaminants of concern as determined in the Baseline Risk Assessment. A further discussion of the Baseline Risk Assessment is described below in Section 6.0.

No volatile organic contaminants were detected in the surface soil samples, however several volatile organic contaminants were detected in the subsurface soil samples. The highest of these was acetone, up to 2.2 milligrams/kilogram (mg/kg) estimated, which was also found in a background sample. Several semi-volatile organic contaminants were detected in the

surface soil samples, but only one was detected in a single subsurface soil sample. All detected levels were below 1 mg/kg, however. A few pesticides and polychlorinated biphenyls (PCBs) were detected at very low levels, all were well below 1.0 mg/kg, in a few surface and/or subsurface soil samples.

Several metals were detected in the surface and subsurface soil samples at levels greater than two (2) times background, however these levels were only found in a few samples. The remaining sample locations in which these same metals were detected were primarily below two (2) times background levels.

Manganese was detected in the surface soil samples and ranged from 110 mg/k to 4500 mg/kg. However, background surface soil samples ranged from 370 mg/kg to 5900 mg/kg. The highest level detected for lead was 340 mg/kg (estimated) in a surface soil sample and 99 mg/kg (estimated) and 150 mg/kg (estimated, in a duplicate of the same sample) in a subsurface soil sample. Zinc was detected in the surface soil samples significantly above background at 530 mg/kg.

Due to a concern over the high variance of manganese levels in the surface soil background samples, additional sample(s) will be collected during the remedial design phase to confirm that this variance is consistent with the environmental setting.

Surface Water Contamination. Seven (7) surface water samples from the unnamed stream and drainage ditch, and from inside the 72-inch drain, were collected and analyzed for all TCL/TAL parameters. Surface water run-off from the Rock Hill Mall and Cherry Road flow through the 72-inch drain and the unnamed stream. There were no contaminants of concern as determined in the Baseline Risk Assessment. A further discussion of the Baseline Risk Assessment is described below in Section 6.0.

No semi-volatile organic contaminants, pesticides, or PCBs were detected in any of the samples. A few volatile organic contaminants were detected in all of the samples, though a specific contaminant may have been detected in just one sample. The highest level detected, Tetrachloroethene at 65 g/l, was from the background sample collected from inside the 72-inch drain. This same contaminant was also detected further downstream at lower concentrations. Because these contaminants were detected in the "background" sample, additional surface water sample(s) will be collected during the remedial design phase to determine if this background sample is representative of true background conditions. Several metals were also detected, but were primarily found at less than two times background or at levels representative of naturally occurring levels for this area.

Sediment Contamination. Seven (7) sediment samples from the unnamed stream and drainage ditch, and from inside the 72-inch drain, in the same locations as the surface water samples, were collected and analyzed for all TCL/TAL parameters. There were no contaminants of concern as determined in the Baseline Risk Assessment. A further discussion of the Baseline Risk Assessment is described below in Section 6.0.

Three (3) volatile organic contaminants were detected in three (3) of the sediment samples. Tetrachloroethene was detected in the background sample at 0.120 mg/kg, which was the highest detected concentration, though it was also detected further downstream. Because these contaminants were detected in the background sample, additional sediment sample(s) will be collected during the remedial design to determine if this background sample is representative of true background conditions.

Semi-volatile organic contaminants were detected in all of the samples, with the highest levels found in sediment sample SD-03. Fluoranthene at 4.8 mg/kg was the highest contaminant detected. Most of the semi-volatile organic contaminants were also detected at significant levels in the background sample. Metals were detected in the samples. The maximum detected concentration was lead at an estimated value of 0.58 mg/kg. The remaining metals detected were primarily less than two times background

6.0 SUMMARY OF SITE RISKS

A Baseline Risk Assessment was conducted to evaluate the risks present at the Site to human health and the environment, under present day conditions and under assumed future use conditions. The purpose of a Baseline Risk Assessment is to provide a basis for taking action and to identify the contaminants and the exposure pathways that need to be addressed by the remedial action. It serves as an indication of the risks posed by the Site if no action were to be taken.

This section of the ROD contains a brief summary of the results of the Baseline Risk Assessment conducted for the Site. The Site land use is currently commercial. There is, however, the potential for part of the Site to become residential in a future use scenario, and that a future resident potentially could install a private well for potable use. This is based on the fact that there are nearby residential areas adjacent to the Site, and that some of these residents use groundwater as a potable source of water.

Carcinogenic risk and noncarcinogenic Hazard Index (HI) ratios were calculated for both the current land use scenario, with residents near the Site (Site visitor), as well as on-site workers, and the potential future land use scenario, which is residential. The Baseline Risk Assessment determined that the total cancer risk for the current Site visitor scenario is 3.34 x 10[-6], and that the total cancer risk for the current on-site worker scenario is 2.05 x 10[-6]. These risk levels only slightly exceed the lower target level of 1 x 10[-6], but is still well within EPA's acceptable risk range of 1 x 10[-4] to 1 x 10[-6]. The Site, therefore, does not pose an unacceptable cancer risk under the current exposure scenario. The total HI for the

current Site visitor scenario is 0.31 and for the current on-site worker scenario is 0.26. These HIs are below any level of concern for

noncarcinogens (1.0) and indicate that the Site does not pose an unacceptable non-carcinogenic risk under the current exposure scenario. Therefore, there is no unacceptable current risk at the Site.

The Baseline Risk Assessment also determined that the total cancer risk for the future Site residential scenario was 2.63 x 10[-2]. This risk level is not within EPA's acceptable risk range (1 x 10[-4] to 1 x 10[-6]). The HI for the future Site residential scenario was 400 for an adult and 950 for a child; these levels exceed the acceptable HI of 1.0. The carcinogenic and non-carcinogenic risks are attributable to the ingestion of groundwater. No substantial risk to wildlife or the environment was found to exist under present conditions or future conditions.

The Baseline Risk Assessment concluded that the surface soils, the surface water, and the sediments at the Site are not media of concern. During the FS, it was determined that the subsurface soil was not a media of concern. The Baseline Risk Assessment determined that the groundwater was the only media posing an unacceptable level of risk to human health or the environment. The actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public welfare or the environment

6.1 Contaminants of Concern

Data collected during the RI were evaluated in the Baseline Risk Assessment. Contaminants were not included in the Baseline Risk Assessment evaluation if any of the following criteria applied:

- If an inorganic compound or element, it was not detected at or above twice the background concentration.
- If an inorganic compound or element, it was detected at low concentrations, had very low toxicity, and was judged to be naturally occurring .
- The sampling data included analytical results flagged as "N" (presumptive evidence) or "R" (not usable).

The results of the Baseline Risk Assessment concluded that the only medium of concern was the groundwater, and that the contaminants of concern were TCE, 1,2-dichloroethene, vinyl chloride, and manganese. Levels of the 1,2-dichloroethene ranged from non-detect (the detection limit was normally 0.010 mg/l) to

1200 g/l. TCE ranged from non-detect to 84,000 g/l. Vinyl chloride levels ranged from non-detect to 26 g/l, and manganese levels ranged from non-detect to 3,600 g/l.

For each contaminant of concern, exposure point concentrations were determined in the Baseline Risk Assessment. The upper ninety-five percent

(95%) confidence limit of the arithmetic mean of all detections was used, unless it exceeded the maximum detected concentration. If this occurred, then the maximum detected concentration was used. The exposure point concentrations calculated in the Baseline Risk Assessment for groundwater were 434 g/l for 1,2-dichloroethene, 84,000 g/l for TCE, 26 g/l for vinyl chloride, and 3600 g/l for manganese.

6.2 Exposure Assessment

The Site land use is currently commercial. There is, however, the potential for part of the Site to become residential in a future use scenario, and that a future resident potentially could install a private well for potable use. This is based on the fact that there are nearby residential areas adjacent to the Site, and that some of these residents use groundwater as a potable source of water. In addition, there are other potable wells within a half-mile radius of the Site. Municipal water, however, is available to the area. The Baseline Risk Assessment determined that the population that could potentially be exposed to Site contaminants would be potential future on-site residents. Based on this information, the Baseline Risk Assessment determined that the reasonable exposure pathways consist of ingestion of chemicals in contaminated groundwater and inhalation of chemicals volatilized during non-ingestion domestic water use, e.g. showering.

The following future use scenario exposure assumptions were used: for exposure to the non-carcinogens by an adult resident, it was assumed that the adult resident would ingest two (2) liters per day of groundwater for twenty-four (24) year period. It was assumed that a child would be exposed for six (6) years, and would only consume 1 liter per day of water. For carcinogens, the time period used was seventy (70) years. An inhalation rate of 0.83 cubic meter/hour was assumed for a 15-minute shower duration.

6.3 Toxicity Assessment of Contaminants

The purpose of the toxicity assessment is to assign toxicity values (criteria) to each chemical evaluated in the Baseline Risk Assessment. The toxicity values are used in combination with the estimated doses to which a human could be exposed (as discussed in the Risk Characterization subsection of the Baseline Risk Assessment) to evaluate the potential human health risks associated with each contaminant. Human health criteria

developed by EPA (cancer slope factors and non-cancer reference doses) were either obtained from the Integrated Risk Information System (IRIS, 1993) or the 1992 Health Effects Assessment Summary Tables (HEAST; EPA, 1992). In some cases the Environmental Criteria Assessment Office (ECAO, 1992) was contacted to obtain criteria for chemicals which were not listed in IRIS or HEAST.

EPA has developed slope factors (SF) to estimate excess lifetime cancer risks associated with exposure to potentially carcinogenic contaminants of concern. Sfs, which are expressed as risk per milligram per kilogram of dose, are multiplied by the estimated intake of a potential carcinogen, in

mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level.

The term "upper bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes underestimation of the actual cancer risk highly unlikely. Slope factors are derived from the results of human epidemiological studies or chronic animal bioassay data to which mathematical extrapolation from high to low dose, and from animal to human dose, has been applied, and statistics to account for uncertainty have been applied (e.g. to account for the use of animal data to predict effects on humans).

EPA has also developed reference doses (RfDs) to establish the potential for adverse human health effects from exposure to the contaminants of concern exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of daily exposure levels for humans, including sensitive subpopulations, that are likely to be without risk of adverse effect. Estimated intakes of contaminants of concern from environmental media (e.g. the amount of chemicals of concern ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied (e.g., to account for the use of animal data to predict effects on humans).

Carcinogenic contaminants are classified according to EPA's weight-of-evidence system. This classification scheme is summarized below:

Group A: Known human carcinogen.

Group B1: Probable human carcinogen, based on limited huma epidemiological evidence.

Group B2: Probable human carcinogen, based on inadequate human epidemiological evidence but sufficient evidence of carcinogenicity in animals.

Group C: Possible human carcinogen, limited evidence of carcinogenicity in animals.

Group D: Not classifiable due to insufficient data.

Group E: Not a human carcinogen, based on adequate animal studies and/or human epidemiological evidence.

TCE is classified as a B2 carcinogen. The oral slope factor used for TCE was 1.10 x 10[-2] and the inhalation slope factor was 1.70 x 10[-2] (the reference used was Dollarhide, 1992). The oral slope factor used for vinyl chloride was 1.90 and the inhalation slope factor was 3.00 x 10[-1] (HEAST, 1992). The reference dose used for 1,2-dichloroethene, oral only, was 1.00 x 10[-2] (HEAST, 1992). The reference dose used for TCE, oral only, was 6.00 x 10[-3] (Dollarhide, 1992). The reference dose for manganese, oral,

was 5.00 x 10[-3] (IRIS, 1993).

6.4 Risk Characterization

The final step of the Baseline Risk Assessment, the generation of numerical estimates of risk, was accomplished by integrating the exposure and toxicity information.

For a carcinogen, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

Risk = CDI x SF

where:

Risk = a unit-less probability (e.g. 2 x 10-5) of an individual developing cancer,

CDI = chronic daily intake averaged over seventy (70) years (mg/kg-day), and

SF = slope-factor, expressed as (mg/kg-day)-1

These risks are probabilities that are generally expressed in scientific notation (e.g. 1 x 10[-6]). An excess lifetime cancer risk of 1 x 10[-6] indicates that, as a reasonable maximum estimate, an individual has a 1 in 1,000,000 chance of developing cancer as a result of Site-related exposure to a carcinogen over a seventy (70) year lifetime period under the specific exposure conditions at a site.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., life-time) with a reference dose derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that the toxic noncarcinogenic effects from that chemical are unlikely. By adding the Hqs for all contaminants of concern that affect the same target organ (e.g. liver) within a medium or across all media to which a given population may reasonably be exposed, the Hazard Index (HI) is generated. An HI less than 1 indicates that, based on the sum of all Hqs from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely.

The HQ is calculated as follows:

Non-cancer HQ = CDI/RfD

where:

CDI = Chronic Daily Intake

RfD = reference dose; and

CDI and RfD are expressed in the same units and represent the same period (i.e., chronic, subchronic, or short-term).

It was determined in the Baseline Risk Assessment that there is no current unacceptable carcinogenic or non-carcinogenic risk at the Site.

Under the future use scenario, the lifetime carcinogenic risk associated with all the exposure pathways is estimated to be 1.47 x 10[-2] for an adult and 1.16 x 10[-2] for a child. The overall carcinogenic risk for a future resident is 2.63 x 10[-2]. The estimated lifetime carcinogenic risk is due primarily to the potential ingestion and inhalation of contaminants in the groundwater.

Under the future use scenario, the lifetime noncarcinogenic risk, associated with all the exposure pathways is estimated to be HI = 400 for an adult resident, and 950 for a child resident. This noncarcinogenic risk is due to the potential ingestion of contaminants in the groundwater.

Because the land use adjacent to the Site is zoned for both residential and commercial use, the ecological communities surrounding the Site have been altered from their natural state.

No state or federally designated endangered or threatened species are found at the Site.

The actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

7.0 DESCRIPTION OF GROUNDWATER REMEDIAL ALTERNATIVE

The FS considered a wide variety of general response actions and technologies for remediating groundwater. No other media at the Site require remedial action.

Based on the FS, Baseline Risk Assessment, and Applicable or Relevant and Appropriate Requirements (ARARs), the remedial action objectives (RAOs) listed below were established for the Site. Alternatives were developed with the goal of attaining these objectives:

- ù Reduce to acceptable levels the excess risk to humans and environmental receptors associated with the medium and contaminants of concern at the Site. This will be accomplished by reducing the concentrations of contaminants that result in excess risk to human health and the environment.

- ù Reduce the potential for ingesting contaminants in the groundwater or inhaling volatilized contaminants from the groundwater from the Site where:
  - ù Carcinogen concentrations are above Federal or State standards, or in the absence of standards, are above levels that would exceed an acceptable cancer risk range of 1 x 10[-4] to 1 x 10[-6];
  - ù Noncarcinogen concentrations are above Federal or State standards, or in the absence of standards, are above levels that would exceed an acceptable Hazard Index (HI) of 1.0.

Technologies considered potentially applicable to groundwater contamination were further evaluated based upon their effectiveness and implementability. Listed below are those alternatives which passed this final screening, and are proposed for groundwater remediation.

Alternative 1: No Action

Alternative 2: Limited Action, institutional controls

Alternative 3: Groundwater extraction, treatment, and surface water discharge

Alternative 4: Groundwater extraction, POTW discharge

Each of the four (4) alternatives is discussed below. Alternatives 1 and 2 will not meet the remediation goals presented in Section 9.1.3 of this ROD. Alternatives 3 and 4 will meet the remediation goals through treatment.

"O&M costs" refer to the costs of operating and maintaining the treatment described in the alternative. The treatment period for Alternatives 3 & 4 was assumed to be thirty (30) years.

Groundwater monitoring for Alternatives 1 & 2 was assumed for the purposes of projecting costs, to be for the five (5) year reviews only. Monitoring for Alternatives 3 & 4 was assumed, for the purpose of projecting costs, to be once a week for the influent and effluent for thirty (30) years and fo the twenty (20) monitoring wells, once a quarter for the first five (5) years and semi-annually for the next twenty-five (25) years. O&M costs were calculated using a seven percent (7%) discount rate per year.

Certain sections of Federal and State environmental statutes (see Section 9) are applicable, or relevant and appropriate requirements (ARARs) for the Site, and must be met by the selected remedial alternative or waived with justification provided as to why that ARAR was waived. Site groundwater is classified by South Carolina as Class GB (SC Water Classifications and Standards, Regulation 61-68), and by EPA as Class IIA (Guidelines for Ground Water Use and Classification, EPA Ground Water Protection Strategy, US EPA 1986).

Alternatives 1 and 2 would not meet the relevant and appropriate ARARs identified in Section 9, concerning groundwater as a potable water source. The National Primary and Secondary Drinking Water Standards, promulgated under 40 C.F.R. Parts 141-143, and the State of South Carolina Primary Drinking Water Regulations, SC Reg. 61-58, would not be met because Alternatives 1 and 2 do not involve treatment of the contaminated groundwater, and contaminants in the Site groundwater violate the MCLs specified in these Federal and State regulations. These ARARs would be met by Alternatives 3 and 4.

In addition, the CERCLA preference for treatment to reduce the toxicity, mobility, or volume of the contaminants, wherever possible, would not be satisfied by Alternatives 1 or 2 since no treatment is involved. The remaining Alternatives, 3 and 4, would achieve these standards, and would also meet the CERCLA preference for treatment, since they are active treatment technologies.

Alternative 3 would be subject to the following ARARs or criteria to be considered (TBCs) because of the on-site treatment plant aspect of the alternative: National Ambient Air Quality Standards (NAAQS), 40 C.F.R. Part 50; National Emissions Standards for Hazardous Air Pollutants (NESHAPs), 40 C.F.R. Part 61, TBC; South Carolina Ambient Air Quality Standards (S.C. Reg. R61-62). Alternatives 3 and 4 would both be subject to the South Carolina Well Standards and Regulations, (R61-71), since both alternatives involve the installation of extraction wells.

Other ARARs for Alternative 3 include the Clean Water Act Pretreatment Standards (40 C.F.R. Parts 122, 125, 129, 133, and 136), and the South Carolina NPDES Discharge Limitations for treated water (R61-9), if discharge is to a stream.

The treatment system related to Alternative 3, may produce a sludge, and possibly spent carbon, that may be subject to the identification (40 C.F.R. Part 261, SCHWMR 61-79.261), transportation (40 C.F.R. Part 262, SCHWMR 61-79.262), manifestation (40 C.F.R. Part 263, SCHWMR 61-79.263), and land disposal restriction (40 C.F.R. Part 268, SCHWMR 61-79.268) requirements of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) 42 U.S.C. [Para][Para] 6901 et seq., if the resulting sludge is determined to be a RCRA hazardous waste.

7.1 Alternative 1: No Action

Under the no action alternative, the Site is left "as is" and no funds are expended for the cleanup or control of the contaminated groundwater. Monitoring of contaminants of concern and their degradation contaminants, not including their innocuous compounds, would be included as part of this alternative. However, the costs associated with the monitoring are not considered capital costs or O&M costs. Monitoring of the contaminants would involve the collection and analysis of groundwater samples from existing Site monitoring wells, at least every five (5) years, to allow tracking of

contaminant concentrations and to monitor the speed, direction, and extent of contaminant migration. The exact number and location of wells to be sampled would be determined during remedial design. In addition, the need for any additional monitoring wells, which may be sampled for additional contaminants, would be determined during the remedial design/remedial action phases. These wells

may be added if it is determined later that groundwater contamination has left the Site property or if further characterization of the Site is needed. Future risks to persons living on and near the Site will remain. Because hazardous contaminants would remain on-site, five (5) year reviews would be required under Section 121(c) of CERCLA, 42 U.S.C. [Para] 9621(c).

Alternative 1:	Capital Cost:	$ 0.00
	Annual O&M Cost:	0.00
	Total Present Worth Cost:	$ 0.00

The cost estimate for sampling the monitoring wells was approximately $ 181,500.00.

7.2 Alternative 2: Limited Action, Institutional Controls

Under this alternative, institutional controls would be implemented to restrict the withdrawal and use of contaminated groundwater on-site. This alternative would also include monitoring of the contaminants, as described in Alternative 1.

The institutional controls that would apply to the Site are deed restrictions and well permit restrictions. Deed restrictions would prevent future use of the contaminated groundwater for purposes such as potable water supply or irrigation of edible garden vegetables. These restrictions would be written into the property deeds to inform future property owners of the possibility of contaminated groundwater beneath the property. Permit restrictions issued by the State of South Carolina would restrict all well drilling permits issued for new wells on properties that may draw water from the contaminated groundwater for potable use or for the irrigation of edible garden vegetables.

Alternative 2:	Capital Cost:	$ 0.00
	Annual O&M Cost:	35,750.00
	Total Present Worth Cost:	$ 181,456.00

7.3 Alternative 3: Groundwater Extraction, Treatment, Surface Water Discharge

Alternative 3 involves placing extraction wells throughout the contaminated groundwater, with overlapping cones of influence, to actively remediate th aquifer. It would involve installing extraction wells and removing contaminated water from the aquifer, both horizontally and vertically, and treating the extracted groundwater. The groundwater would be extracted until the performance standards are met. This will also prevent further

migration of the contaminated groundwater. In addition, the contaminated groundwater near the monitoring wells that had the highest concentration of contaminants, MW-03, shall be

remediated as quickly as possible, to prevent the migration of the contaminated groundwater further into the bedrock, as well as, prevent migration of the contaminated groundwater to other parts of the Site. This may include installing several extraction wells in this particular area, including into the bedrock to the depth of the contamination. After extraction, the water would go to an on-site treatment system that may include neutralization, oxidation, sedimentation, filtration, and/or carbon adsorption. The "clean" water from the treatment system would then be discharged to the surface water. The groundwater would be treated to remove inorganic and organic contaminants. Modeling conducted during the RI, suggested that the pumping rate would be about fifteen (15) to twenty (20) gallons/minute using about 1 - 2 extraction wells for a period of about thirty (30) years. The actual number of wells and pumping rates shall be determined during the remedial design. However, in order to quickly remove the contaminated groundwater, additional extraction wells may need to be installed, especially near the monitoring wells where the highest contamination was detected (MW-03).

In addition to groundwater extraction and treatment, institutional controls, as those described in Alternative 2, would be implemented to limit current and future use of groundwater until the performance standards are continuously achieved. Groundwater monitoring will be conducted a minimum of once a year, during the time of the year when the highest contamination was detected during the RI (July or August). Monitoring wells and possibly extraction wells, shall be sampled and analyzed for all contaminants of concern and their degradation contaminants, not including their innocuous compounds, as determined during the remedial design. The amount and frequency of sampling and contaminants to be sampled for, shall be modified, if required by EPA. The influent and effluent of the treatment system will be sampled as determined during the remedial design/remedial action.

The cost below are approximate, and an average of the costs determined for one and two extraction well scenarios.

Alternative 3:	Capital Cost:	$ 900,000.00
	Annual O&M Cost:	348,000.00
	Total Present Worth Cost:	$ 4,800,000.00

7.4 Alternative 4: Groundwater Extraction, POTW discharge

Alternative 4 involves placing extraction wells throughout the contaminated groundwater, with overlapping cones of influence, to actively remediate the aquifer as was described in Alternative 3. This alternative would involve installing extraction wells and removing contaminated water from the aquifer, both horizontally and vertically. The groundwater would be extracted until the

performance standards are met. This will also prevent further migration of the contaminated groundwater. In addition, the contaminated groundwater near the monitoring wells that had the highest concentration of contaminants, MW-03, shall be remediated as quickly as possible, to prevent the migration of the contaminated groundwater further into the bedrock, as well as, prevent migration of the contaminated groundwater to other parts of the Site. This may include installing several extraction wells in this particular area, including into the bedrock to the depth of the contamination. Modeling conducted during the RI suggested that the pumping rate would be about fifteen (15) to twenty (20) gallons/minute using about 1 - 2 extraction wells for a period of about thirty (30) years. The actual number of wells and pumping rates shall be determined during the remedial design. However, in order to quickly remove the contaminated groundwater, additional extraction wells may need to be installed, especially near the monitoring wells where the highest contamination was detected (MW-03). As opposed to Alternative 3, this alternative would discharge the contaminants, via sewer line, to the publicly owned treatment works (POTW). No pretreatment is anticipated before the contaminated groundwater is discharged to the sewer line. In addition to groundwater extraction, institutional controls, as described in Alternative 2, would be implemented to limit current and future use of groundwater until the performance standards are continuously achieved. Also, contaminant monitoring would be performed to monitor the effectiveness of the alternative in achieving the remediation goals, as described in Alternative 3.

The cost below are approximate, and an average of the costs determined during the FS, for one and two extraction well scenarios.

Alternative 4:	Capital Cost:	$ 280,000.00
	Annual O&M Cost:	225,000.00
	Total Present Worth Cost:	$ 2,300,000.00

8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES FOR GROUNDWATER

The four (4) alternatives for groundwater remediation were evaluated based upon the nine (9) criteria set forth in 40 C.F.R. [Para] 300.430(e)(9) of the NCP. In the sections which follow, brief summaries of how the alternatives were judged against these nine (9) criteria are presented. In addition, the sections are prefaced by brief descriptions of the criteria.

8.1 Groundwater Remediation Alternatives

8.1.1 Threshold Criteria

Two (2) threshold criteria must be achieved by a remedial alternative before it can be selected.

1. Overall protection of human health and the environment addresses whether the alternative will adequately protect human health and the environment from the risks posed by the Site. Included is an assessment of how and whether the risks will be properly eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls

Alternative 1, No Action, will not provide overall protection of human health and the environment, since contaminated groundwater would be left on-site. Alternative 2, Limited Action (Institutional Controls), would achieve limited protection of human health from the contaminants by preventing exposure to affected groundwater through deed restrictions that prohibit future use of groundwater under the Site, but would not be protective of the environment, nor off-site residents if the groundwater contamination moved off-site. Alternatives 3 & 4, Groundwater Extraction will provide overall protection of human health and the environment through extraction of contaminated groundwater and either on-site or off-site treatment of the groundwater.

2. Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether an alternative will meet all of the requirements of Federal and State environmental laws and regulations, as well as other laws, and/or justifies a waiver from an ARAR. The specific ARARs which will govern the selected remedy are listed and described in Section 9.0, the Selected Remedy.

The evaluation of the ability of the proposed alternatives to comply with ARARs included a discussion of ARARs presented in Section 7.0. Alternative 1, No Action, and Alternative 2, Limited Action, Institutional Controls would not meet ARARs, since contaminated groundwater is left on-site. Alternatives 3 & 4, Groundwater Extraction, are expected to meet ARARs, since they are active treatment technologies.

8.1.2 Primary Balancing Criteria

Five (5) criteria were used to weigh the strengths and weaknesses of the alternatives, and were used to select one of the four (4) alternatives. Assuming satisfaction of the threshold criteria, these five (5) criteria are EPA's main considerations in selecting an alternative as the remedy.

1. Long term effectiveness and permanence refers to the ability of the alternative to maintain reliable protection of human health and the environment over time, once the remediation goals have been met. Alternative 1, No Action, and Alternative 2, Limited Action, Institutional Controls, will not provide long term effectiveness, since the remediation goals will not be met. Alternatives 3 & 4, Groundwater Extraction, will achieve permanent reduction in contaminants through the extraction and treatment of the contaminated groundwater, and therefore, be effective in the long-term.

2. Reduction of toxicity, mobility, or volume through treatment addresses the anticipated performance of the treatment technologies that an

alternative may employ. The 1986 amendments to CERCLA, the Superfund Amendments and Reauthorization Act (SARA), direct that, when possible, EPA should choose a treatment process that permanently reduces the level of toxicity of Site contaminants, eliminates or reduces their migration away from the Site, and/or reduces their volume on a Site.

Alternative 1, No Action, would not achieve a reduction in the toxicity, mobility, or volume of the contaminants since the alternative is considered complete at this time

Alternative 2, Limited Action, Institutional Controls, is not a treatment technology and, therefore, does not satisfy the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce the toxicity, mobility, or volume of the contaminants.

Alternatives 3 and 4, Groundwater Extraction, use active treatment technologies to permanently reduce the toxicity, mobility, and volume of the contaminated groundwater.

3. Short-term effectiveness refers to the potential for adverse effects to human health or the environment posed by implementation of the remedy.

Alternatives 1 & 2, No Action and Limited Action, Institutional Controls, afford the greatest level of short-term protection because they present the least risk to remedial workers, the community, and the environment, since these alternatives do not involve a remedial action. The other Alternatives, 3 & 4, could release minimal volatile emissions during extraction well installation and/or treatment system construction. Standard construction management techniques would address any potential short-term fugitive emissions.

4. Implementability considers the technical and administrative feasibility of an alternative, including the availability of materials and services necessary for implementation. Alternatives 1 & 2, No Action and Limited Action, Institutional Controls, will be the easiest to implement since they do not involve the construction of a treatment system.

The construction technologies required to implement Alternatives 3 & 4, Groundwater Extraction, are well established and very reliable. The extraction and treatment systems would have additional operational requirements compared to Alternatives 1 and 2, because of the complexities of the continuous operation of a groundwater extraction system, the operation of a multi-component treatment system, and requisite discharge limits on the resulting treated effluent. The extraction and treatment system would be more difficult to operate and maintain than options proposed under Alternatives 1 & 2.

The technical implementability of all the evaluated alternatives is reasonable. Technologies required to implement the alternatives are readily available and proven at full-scale in similar field efforts. Discharge

permits or at least the criteria, may need to be obtained for the implementation of Alternative 3, since it includes an on-site treatment system which may discharge to the unnamed stream.

5. Cost includes both the capital (investment) costs to implement an alternative, plus the long-term O&M expenditures applied over a projected period of operation. Alternative 1 has no costs since it is completed. Alternative 2 is lower in cost than Alternatives 3 and 4, since it involves only the costs of monitoring the groundwater, implementing deed and well restrictions. Alternative 4 is less than Alternative 3.

8.1.3 Modifying Criteria

State acceptance and community acceptance are two (2) additional criteria that are considered in selecting a remedy, once public comment has been received on the Proposed Plan.

1. State acceptance: The State of South Carolina concurs with this remedy. A copy of South Carolina's letter of concurrence is attached (Appendix B) to this ROD.

2. Community acceptance was indicated by the verbal comments received at the Rutledge Property Site Proposed Plan public meeting, held on March 1, 1994. The public comment period opened on February 22, 1994, and closed on April 25, 1994 (after a thirty (30) day extension). Written comments received concerning the Site, and those comments expressed at the public meeting, are addressed in the Responsiveness Summary attached as Appendix A to this ROD.

9.0 THE SELECTED REMEDY

9.1 Groundwater Remediation

Based upon consideration of the requirements of CERCLA, the NCP, the detailed analysis of the four (4) alternatives and public and state comments, EPA has selected a remedy that addresses groundwater contamination at this Site.

The selected remedy for the Site is:

Alternative 4, Groundwater Extraction, POTW discharge

Total present worth cost of the selected remedy is approximately:

$ 2,300,000.00

This remedy consists of groundwater extraction of contaminated groundwater, followed by discharge to the POTW. The following subsections describe this remedy component in detail, provide the criteria (ARARs and TBC material) which shall apply, and establish the performance standards for implementation.

9.1.1 Description

This remedy component consists of the design, construction and operation of a groundwater extraction system, and development and implementation of a Site monitoring plan to monitor the system's performance. The groundwater alternative specified below shall be continued until the performance standards listed in Section 9.1.3. are achieved, at a minimum, in all of the monitoring and extraction wells that are associated with the Site.

This alternative involves placing extraction wells throughout the entire area of contaminated groundwater, with overlapping cones of influence, to actively remediate the aquifer. It would involve installing extraction wells and removing contaminated water from the aquifer, both horizontally and vertically. The groundwater would be extracted until the performance standards are met continuously. This will also prevent further migration of the contaminated groundwater. In addition, the contaminated groundwate near the monitoring wells that had the highest concentration of contaminants, MW-03, shall be remediated as quickly as possible, to prevent the migration of the contaminated groundwater further into the bedrock, as well as, prevent migration of the contaminated groundwater to other parts of the Site. This may include installing several extraction wells in this particular area, including into the bedrock to the depth of the contamination. The actual number of wells, their depths, and their pumping rates shall be determined during the remedial design.

The contaminated groundwater would then be discharged, via sewer line, to the local POTW. No pretreatment is anticipated before the contaminated groundwater would be discharged to the sewer line.

In addition to the process described above, this alternative will include implementation of all of the institutional controls and contaminant monitoring requirements described below, thereby monitoring the effectiveness of the alternative and limiting future use of groundwater until clean-up goals are achieved.

Institutional controls that would apply to the Site, include deed restrictions and well permit restrictions. Deed restrictions would prevent the future use of the contaminated groundwater for purposes such as potable water supply or irrigation of edible garden vegetables. These restrictions will be written into the property deeds to inform future property owners of the possibility of contaminated groundwater beneath the property. Permit restrictions, issued by the State of South Carolina, would restrict all well drilling permits, issued for new wells on the Site property, that may draw water from the contaminated groundwater for potable water use or irrigation of edible vegetables.

Monitoring of contaminants of concern and their degradation contaminants, not including their innocuous compounds, would be included as part of this alternative, at a minimum. EPA may require additional contaminants, including all TCL/TAL parameters, to be analyzed. Monitoring of the

contaminants would involve the collection and analysis at regular intervals, of groundwater samples from existing Site monitoring wells, and possibly extraction wells, to allow tracking of contaminant concentrations and to monitor the speed, direction, and extent of contaminant migration. The actual number and location of well samples, and contaminants to be analyzed for, will be determined during the remedial design/remedial action phases. Samples will be collected and analyzed for contaminants of concern and their degradation contaminants, at a minimum, however, once every year (at the time of the year in which the highest level of contamination was detected during the RI, July or August), unless a different frequency is required by EPA. In addition, the need for any additional monitoring wells, which may be sampled for additional contaminants, will be determined during the remedial design/remedial action phases. These wells may be added if it is determined later, that groundwater contamination has left the Site property, or that contamination is significantly above the clean-up criteria in the outer monitoring wells, as determined by EPA, or that further characterization of the Site is needed.

The vertical extent of groundwater contamination will be confirmed and/or updated during the remedial design. This may require that additional monitoring wells, screened at various depths, be installed. This will be determined by EPA during the remedial design/remedial action phases. The goal of this remedial action is to restore groundwater to its beneficial use as a drinking water source. Based on the information collected during the RI, and on a careful analysis of all remedial alternatives, EPA and the State of South Carolina believe that the selected groundwater remedy, Alternative 4, will achieve this goal.

If it is determined, on the basis of the preceding criteria and the system performance data (after all attempts have been made as determined by EPA), that certain portions of the aquifer cannot be restored to their beneficial use, all or some of the following measures involving long-term management may occur, for an indefinite period of time, as a modification of the existing system:

- ù engineering controls such as physical barriers as containment measures;
- ù chemical-specific ARARs will be waived for the cleanup of those portions of the aquifer based on the technical impracticability of achieving further contaminant reduction;
- ù institutional controls will be provided/maintained to restrict access to those portions of the aquifer that remain above remediation goals;
- ù continued monitoring of specified well locations; and
- ù periodic re-evaluation of remedial technologies for groundwater restoration.

The decision to invoke any or all of these measures may be made during a review of the remedial action, which will occur minimally at five (5) year intervals in accordance with Section 121(c) of CERCLA, 42 U.S.C. [Para] 9621(c).

9.1.2 Applicable or Relevant and Appropriate Requirements (ARARs)

Applicable Requirements. Groundwater remediation shall comply with all applicable portions of the following Federal and State of South Carolina regulations: SC Reg. 61-68, South Carolina Water Classifications and Standards. These regulations establish classifications for water use, and set numerical standards for protecting state waters.

SC Reg. 61-71, South Carolina Well Standards and Regulations, promulgated under the Safe Drinking Water Act, SC Code of Laws, 1976, as amended. Standards for well construction, location and abandonment, are established for remedial work at environmental or hazardous waste sites.

Relevant and Appropriate Requirements. The following regulations are relevant to groundwater remediation at the Site.

40 C.F.R. Parts 141-143, National Primary and Secondary Drinking Wate Standards, promulgated under the authority of the Clean Water Act. These regulations establish acceptable maximum levels of numerous substances in public drinking water supplies, whether publicly owned or from other sources such as groundwater.

Maximum Contaminant Levels (MCLs) are specifically identified in 40 C.F.R. [Para] 300.430(e)(2)(i)(B) of the NCP as remedial action objectives for groundwater that are current or potential sources of drinking water supply. Therefore, MCLs are relevant and appropriate as criteria for groundwater remediation at this Site.

SC Reg. 61-58, South Carolina Primary Drinking Water Regulations, promulgated pursuant to the Safe Drinking Water Act, SC Code of Laws, 1976, as amended. These regulations are similar to the federal regulations described above, and are relevant and appropriate as remediation criteria for the same reasons set forth above.

Criteria "To Be Considered" (TBC) and Other Guidance. TBC criteria were utilized and/or established in the Baseline Risk Assessment and in the FS. Groundwater cleanup standards were established based on these documents and both are thus considered TBC.

In the Baseline Risk Assessment, TBC material used included information concerning toxicity of, and exposure to, Site contaminants. Sources of such data included the Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), and EPA guidance as specified in the Baseline Risk Assessment.

In the FS, groundwater concentrations protective of human health and the

environment were calculated based on the Site-specific risk calculations from the Baseline Risk Assessment. Certain of these levels were established as remediation goals in cases where there is no MCL for a particular contaminant. A specific contaminant for which a health-based goal was established was manganese. The groundwater remediation goals are established as performance standards in the Section 9.1.3.

Other TBC material include the following:

Guidelines for Groundwater Use and Classification, EPA Groundwater Protection Strategy, U.S. EPA, 1986. This document outlines EPA's policy of considering a site's groundwater classification in evaluating possible remedial response actions. As described under Section 7.0, the groundwater at the Site is classified by EPA as Class IIB and by South Carolina as Class GB groundwater, indicating its potential as a source of drinking water.

Other requirements. As described above in Section 9.1.2, remedial design often includes the discovery and use of unforeseeable but necessary requirements. Therefore, during design of the groundwater component of the selected remedy, EPA may, through a formal ROD modification process such as an Explanation of Significant Differences or a ROD Amendment, elect to designate further ARARs which apply, or are relevant and appropriate, to groundwater remediation at this Site.

9.1.3 Performance Standards

The standards outlined in this section comprise the performance standards defining successful implementation of the remedy. The groundwater remediation goals in Table 1 below shall be the performance standards for groundwater treatment.

9.2 Monitor Site Groundwater

Monitoring of contaminants of concern and their degradation contaminants, not including their innocuous compounds, would be included as part of Alternative 4, as was described above. Monitoring of the contaminants would involve the collection and analysis at regular intervals, of groundwater samples from existing Site monitoring wells, to allow tracking of contaminant concentrations and to monitor the speed, direction, and extent of contaminant migration. The number and location of well samples will be determined during remedial design. Samples will be collected and analyzed for contaminants of concern and their degradation contaminants, not including their innocuous compounds, at a minimum, however, of once per year (during the time of the year in which the highest level of contamination was detected during the RI, July or August), unless a different frequency is approved by EPA. This annual sampling will begin after one of the following occurs; the signing of a consent decree, a unilateral administrative order is issued, or a Statement of Work is issued to an EPA Contractor. In addition, the need for any additional monitoring wells, which may be sampled for additional contaminants, will be determined during the remedial design/remedial action phases. These wells may be added if it is determined

later that groundwater contamination has left the Site property, or that contamination is

<Figure>

significantly above the clean-up criteria in the outer monitoring wells, as determined by EPA, or if further characterization of the Site is needed. In addition, on a time frame to be determined by EPA, and as part of the verification sampling, when it is believed by EPA that the remedial action is complete, the monitoring wells and extraction wells shall be sampled for all TAL/TCL parameters over a period of time to be determined by EPA. The vertical extent of groundwater contamination will be confirmed and/or updated during the remedial design.

Other Requirements

Due to the fact that very low levels of Site-related contamination were detected in the private wells (Figure 3), further evaluation of the construction characteristics of the private wells will be required in the remedial design. The primary private wells of concern are PW-03 and PW-04. Two off-site private wells, PW-01 and PW-02, may also be studied. If the screened depths of these private wells exceed the screened depths of the on-site monitoring wells, additional monitoring wells may be required. These additional monitoring wells will be used to fully demonstrate that there is no Site related aquifer contamination, at levels of concern, at the deeper screened depths.

Due to a concern over the high variance of manganese levels in the surface soil background samples, additional sample(s) will be collected during the remedial design to confirm that this variance is consistent with the environmental setting.

Because organic contaminants were detected at elevated levels in the background surface water and sediment samples, additional surface water and sediment samples, from upstream, will be collected during the remedial design to determine if this background sample is representative of true background conditions.

10.0 STATUTORY DETERMINATIONS

The selected remedy for this Site meets the statutory requirements set forth at Section 121(b)(1) of CERCLA, 42 U.S.C. [Para] 9621(b)(1). This section states that the remedy must protect human health and the environment; meet ARARs (unless waived); be cost-effective; use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and finally, wherever feasible, employ treatment to reduce the toxicity, mobility or volume of the contaminants. The following sections discuss how the remedy fulfills these requirements.

Protection of human health and the environment: The groundwater remediation alternative will extract the contaminated groundwater and discharge it to the local POTW, thereby reducing and eventually removing the future risks to human health which could result from ingestion and inhalation of the groundwater. This remedy would also reduce the potential risk to the environment.

Compliance with ARARs: The selected remedy will meet ARARs, which are listed in Sections 9.1.2 of this ROD.

Cost effectiveness: Among the groundwater alternatives that are protective of human health and the environment and comply with all ARARs, the selected alternative is the most cost-effective choice because it uses a treatment technology to remediate the contamination in basically the shortest time frame, at a cost less than the other treatment alternative.

Utilization of permanent solutions, and alternative treatment technologies or resource recovery technologies to the maximum extent practicable: The selected remedy represents the use of treatment for a permanent solution. Among the alternatives that are protective of human health and the environment and comply with all ARARs, EPA and the State of South Carolina have determined that the selected remedy achieves the best balance of trade-offs in terms of long-term effectiveness and permanence, reduction of toxicity/mobility/volume, short-term effectiveness, implementability, and cost. The selected groundwater action is more readily implementable than the other treatment alternative considered and the selected groundwater remediation alternative will fulfill the preference for treatment as a principal element.

APPENDIX

RESPONSIVENESS SUMMARY

RUTLEDGE PROPERTY SUPERFUND SITE

RUTLEDGE PROPERTY SUPERFUND SITE

1. Overview

The U. S. Environmental Protection Agency (EPA) held a public comment period from February 22, 1994 to March 24, 1994, for interested parties to comment on the remedial investigation/feasibility study (RI/FS) results and the Proposed Plan for the Rutledge Property Superfund Site located in Rock Hill, South Carolina. Upon receipt of a request, the comment period was extended

an additional thirty (30) days. The comment period closed on April 25, 1994.

EPA held a public meeting at 7:00 p.m. on March 1, 1994, at the Rock Hill City Hall in South Carolina, to present the results of the RI/FS and the Baseline Risk Assessment, to present EPA's Proposed Plan, and to receive comments from the public.

EPA proposed a remedy consisting of extraction of contaminated groundwater with discharge to the POTW.

The Responsiveness Summary provides a summary of citizens' comments and concerns identified and received during the public comment period, and EPA's response to those comments and concerns. These sections and attachments follow:

- ù Background of Community Involvement
- ù Summary of Comments Received During the Public Comment Period and EPA's Responses;
- ù Attachment A: Proposed Plan for Rutledge Property Superfund Site;
- ù Attachment B: Public Notices of Public Comment Period & Extension of Public Comment Period;
- ù Attachment C: Written Public Comments Received During the Public Comment Period;
- ù Attachment D: Official Transcript of the Proposed Plan Public Meeting.

2. Background of Community Involvement

EPA's community relations program for the Site began in January 1992, when EPA conducted community interviews in order to develop a community relations plan for the Site. At that time, residents living adjacent to the Sit voiced some concerns about Cranford Park's water system that needed to be upgraded. Since that time this issue has been resolved by the municipal water company. Allegations from the single resident in the Dearwood Trailer Park that contaminated well water was being furnished to his trailer, were made. One resident was concerned about his child playing on the Site property, and some concerns were raised about the use of government money.

Throughout EPA's involvement, the community has been kept aware and informed of Site activities and findings. Discussions have taken place during visits to the area by EPA's remedial project manager (RPM). Local officials were briefed during the community interviews, and updated as needed. EPA has responded to inquiries from the community and other interested parties.

3. Summary of Comments Received During the Public Comment Period and Agency Responses

The Public Comment Period was opened on February 22, 1994, and ended on March 24, 1993. Upon request, a thirty (30) day extension was granted, which extended the comment period to April 25, 1994. Public notice announcements were published in local newspapers and copies of the announcements are included as Attachment B.

On March 1, 1994, EPA held a public meeting to present the Proposed Plan to the community and to receive comments. All comments received at this public meeting and during the public comment period are summarized below.

Summary and Response to Local Community Concerns

The following issues and concerns were expressed at the Proposed Plan Public Meeting, and during the public comment period.

COMMENT: A written comment stated that during the Remedial Design phase, an Intermediate Design (60%) submittal would not be necessary, and would not be an efficient use of funds.

RESPONSE: EPA, in general, agrees with this concept, however, this will not be determined in the Record of Decision (ROD). The purpose of the ROD is to document the chosen remedial action alternative. A determination will be made during the RD phase regarding the necessity for an intermediate design submittal.

COMMENT: Another written comment stated that the letter from the POTW stating they would accept untreated groundwater, was not in the Administrative Record.

RESPONSE: EPA checked both Administrative Records, one at EPA, and one at the information repository in Rock Hill, and both contained this letter.

COMMENT: A written comment stated that EPA's cleanup goal for 1,2-dichloroethene (1,2-DCE) is 70 ug/l. The commentator stated that "1,2-DCE should be split into two standards to reflect the MCLs of the cis- and trans- isomers of 1,2-DCE. The trans- isomer has a higher MCL of 100 ug/l. The lower standard for the cis-isomer would apply whenever analytical results are reported as total 1,2-dichloroethene."

RESPONSE: During the RI, as is usually done, only total 1,2-dichloroethene was analyzed for, and not the individual isomers. In doing so, it was tacitly assumed that all 1,2-DCE was in the cis-isomer form, for risk assessment purposes. By doing so, and by using the MCL for cis-1,2-DCE of 70 ug/l, EPA has taken an environmentally conservative approach. Therefore, EPA has chosen the slightly lower MCL of 70 ug/l as the cleanup standard for total 1,2-DCE versus 100 ug/l.

COMMENT: Another written comment said "The RI recommended additional study

of the ecological communities that could be impacted by this site, even though the RI Report states that the site does not pose a threat to any state or federally listed species of concern. The RI's surface soil results show that further migration of site contaminants to receiving waters is not anticipated. The EPA's ecological screening did not identify any sensitive ecological communities immediately downstream of the site. An ecological study is therefore likely to be unproductive, and the money for it would be better spent on cleanup."

RESPONSE: This comment makes the erroneous assumption that money spent on a study of ecological concerns will be money that is unwisely spent. This is not the case. Any further study of ecological communities or impacts attributable to the Site, will be conducted, if required by EPA, in order to determine if unacceptable levels of risk to biological receptors have been fully identified. These potentially unacceptable levels of risk would not necessarily be limited to threats to endangered or threatened species, or to sensitive ecological communities. The extent of potential threats to all biological receptors, endangered or not, in all habitats, whether or not they are "sensitive ecological communities," may be required to be fully delineated.

COMMENT: A written comment and one brought up at the public meeting concerned the fact that contaminants similar to site-related contaminants were detected in private wells PW-03 and PW-04. The written commentator felt the monitoring well network was extensive and sufficient to determine that the contaminants were not site related. The commentator at the public meeting was not sure that this was true, and that possible further characterization was needed, since the deepest monitoring wells at the site may not have been as deep as the private wells.

RESPONSE: EPA stated in the public meeting that during the remedial design, the depth of PW-04 would be determined. Also during the remedial design, the level of the water table in the well will be measured. This will be compared with the water levels of the monitoring wells on-site, to determine if the groundwater would flow from the Site to the private well or from the direction of the private well toward the Site. If after this, it is determined by EPA that a potential migration pathway from the Site to PW-04 may exist, additional monitoring well(s) may be installed.

COMMENT: A written comment stated that the depth of the extraction wells was not stated in the proposed plan, and that the wells should not be placed in the bedrock (at least no more than a few feet), because it would be difficult and technically impracticable to extract groundwater from bedrock fractures for remediation purposes.

RESPONSE: The exact depth and number of extraction wells will be determine during the remedial design. At this time EPA does not believe it is technically impracticable to extract groundwater from bedrock fractures for remediation purposes, especially in the vicinity of bedrock wells with known contamination.

COMMENT: At the public meeting a concern was expressed about sending untreated groundwater to the POTW. It was felt that the underground pipes to and from the treatment plant may leak causing contaminants to get back into the groundwater which in turn would get to private wells. The commentator was also concerned that treated water from the treatment plant would not really be clean and, as the plant discharged treated effluent to the stream, contaminants from the site might get into the surface water which would flow downstream to the point where the intake pipe for the City of Rock Hill drinking water is, and they would then be exposed to contamination. One commentator felt that onsite treatment should be done to bring the water to "an acceptable level for an acceptable dumping, wherever that site may be."

RESPONSE: EPA believes that sending the extracted groundwater to the POTW is an acceptable alternative. The personnel at the POTW was contacted several times, both before and after the public meeting, and is aware of the concentrations of contaminants detected in the groundwater and has signed a letter saying they

will accept the untreated groundwater, and have reconfirmed this verbally since the public meeting. In addition, three (3) of the four (4) contaminants of concern are volatile organics which will be effectively removed due to the aeration process at the treatment plant, and therefore, will not likely be in water discharged from the treatment plant. Also, when the extraction system is in place, it will pull in water from all directions, so that the average concentration of the water that would be sent to the POTW should be significantly lower than the highest concentration detected in the one well. Also, as was stated by EPA at the public meeting, and as was confirmed in a phone conversation with city personnel after the public meeting, the groundwater infiltrates into the pipes versus water going from the pipes into the groundwater. In addition, the volume of water that will be sent to the POTW from the Site, approximately 28,000 gallons/day is very small in comparison to the overall flow from other sources that goes to the treatment plant (approximately 5 million gallons/day). Lastly, the water from the sewage plant (where the extracted groundwater is to be sent) discharges into the Catawba River, far downstream of the drinking water intake.

COMMENT: Another concern expressed at the public meeting and from an attendee in a letter to EPA, was that not all the soil contamination had been removed and therefore, contaminants would keep leaching into the groundwater.

RESPONSE: As was stated at the public meeting, there have been two (2) removals at the Site, in which soil samples were collected and analyzed before the removal and prior to the excavations being backfilled with clean soil. These results were used initially to determine the area of where the removals needed to take place and was used to show that the removals adequately removed the contaminated soil. In addition sixty-five (65) soil samples were collected during the RI. The Baseline Risk Assessmen determined that there was not an unacceptable current or future risk from

the soil.

COMMENT: Another comment was that the Site should be posted with signs and fenced off.

RESPONSE: The Baseline Risk Assessment determined that there was no unacceptable current or future risk from the soil, therefore EPA does not believe a fence is required at this Site. During a remedial action, it is common to have a sign indicating the activities currently underway at the Site. This type of sign will probably be placed at the Site during the remedial action.

Attachment A

Proposed Plan for Rutledge Property Superfund Site

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUPERFUND PROPOSED PLAN FACT SHEET

RUTLEDGE PROPERTY (ROCK HILL
CHEMICAL COMPANY) SUPERFUND SITE

Rock Hill, York County, South Carolina February 1994

This fact sheet is one in a series designed to inform residents and local officials of the ongoing cleanup efforts at the Site. A number of terms specific to the Superfund process (printed in bold print) are defined in a glossary at the end of this publication.

INTRODUCTION

The United States Environmental Protection Agency (EPA) is proposing a cleanup plan, referred to as the "preferred alternative", to address groundwater contamination at the Rutledge Property Superfund Site (the Site) located in Rock Hill, South Carolina. This document is being issued by EPA, the lead Agency for Site activities, and the South Carolina Department of Environmental Health and Control (SCDHEC), the support Agency. SCDHEC has reviewed this preferred alternative and concurs with EPA's recommendation.

This Proposed Plan summarizes the cleanup methods and technologies evaluated in the Site's Feasibility Study (FS). In accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), known as "Superfund", as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), EPA is publishing the Proposed Plan for the following reasons:

1) To provide an opportunity for the public's review and comment on

all of the

PROPOSED PLAN PUBLIC MEETIN
for the
RUTLEDGE PROPERTY SUPERFUND SITE
Tuesday, March 1, 1994 - 7:00 P.M.
SULLIVAN MIDDLE SCHOOL - CAFETERIA
1825 Edin Terrace, Rock Hill, South Carolina

You are encourage to attend the public meeting to learn more about the cleanup alternatives developed for the Rutledge Property Superfund Site, as well as the alternative proposed by EPA. The public meeting will also provide an opportunity for interested individuals to submit comments to EPA on the Feasibility Study and the Proposed Plan. Representatives from EPA and the SCDHEC will be available to answer questions. Please plan to attend.

cleanup options, known as remedial alternatives, under consideration for the Site.

2) To initiate a thirty (30) day public comment period from Friday, February 18, 1994, to Monday, March 21, 1994 to receive comments on this Proposed Plan and the RI/FS reports.

EPA, in consultation with SCDHEC, will select a remedy for the Site only after the public comment period has ended and all information submitted to EPA during that time has been reviewed and considered.

As outlined in Section 117(a) of CERCLA, EPA encourages public participation by publishing Proposed Plans for Superfund Sites, and by providing an opportunity for the public to comment on the proposed remedial actions. As a result of such comments, EPA may modify, or change, its preferred alternative before issuing a Record of Decision (ROD) for the Site. This process is explained in more detail in the Public Participation Section of this document which begins on page 16.

Scope and Role of this Action

Based on the previous soil removals, and the data present to date, EPA's plan for remediation will address the principal threat remaining at the Site, contaminated groundwater.

EPA's preferred alternative for cleanup of the Site's groundwater is Alternative 4-B, Groundwater Pumping by two (2) Extraction Wells and Discharge to the City of Rock Hill Publically Owned Treatment Works (POTW). This alternative achieves the best balance of compliance with the criteria EPA uses to evaluate remedial alternatives. The preferred alternative, as well as the others considered, are summarized in this fact sheet and presented in its entirety in the FS.

This fact sheet also summarizes information that is explained in greater

detail in the Remedial Investigation/Feasibility Study (RI/FS) Report, dated December 1993, and the Baseline Risk Assessment (BRA), dated July 1993. These documents, and all other records utilized by EPA to make the preferred alternative proposal, are contained in the Administrative Record for this Site. EPA and SCDHEC encourage the public to review this information, especially during the public comment period, and has established an Information Repository near the site. Review of this material will furthe explain Site characteristics, the Superfund process, and EPA's logic behind this Proposed Plan. The Administrative Record is available for public review, during normal working hours, at the following locations:

York County Library
138 East Black Street
Rock Hill, South Carolina 29731
(803)324-3055

Records Center
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, GA 30365
(404)347-0506

This Proposed Plan:

1) Includes a brief history of the Site, the principal findings of the Remedial Investigation (RI), and a summary of the Baseline Risk Assessment;

2) Presents the cleanup alternatives considered by EPA, and presented in the Feasibility Study (FS);

3) Outlines the criteria used by EPA to recommend a preferred alternative for use at the Site;

4) Provides a summary of the analysis of alternatives;

5) Presents EPA's rationale for its preliminary selection of a preferred alternative;

6) Explains the opportunities for the public to comment on the remedial alternatives, and, hence, the cleanup method for the Rutledge Property Superfund Site.

SITE BACKGROUND

The Rutledge Property Site (the Site) is located between Cherry Road (U.S. Highway 21) and Farlow Street, just east of Cranford Street in Rock Hill, York County, South Carolina. The 4.5 acre Rutledge Property is the location where Rock Hill Chemical Company (RHCC) operated a solvent reclamation facility from 1960 to 1964 (Fig. 1).

Waste management practices during the company's existence were poor. Paint sludges, textile dye products, used solvents, and other solid wastes generated during the reclamation process were stored in piles placed directly on the ground. In some cases, waste products were buried at the Site. On several occasions, tanks that were used to hold liquid wastes before reclamation had leaked onto the ground, creating a potential source of contamination.

The Rock Hill Chemical Company ceased operations in the summer of 1964. The following October, a fire at the facility caused drums of oil and chemicals to explode, releasing their contents into the environment. In 1985, soi was removed from the western portion of the Site, now occupied by First Union National Bank of South Carolina (FUNBSC). An additional soil removal took place between 1987 and 1989, which included the removal of five (5) storage tanks.

The Rutledge Property Site was proposed for the National Priorities List (NPL) in June of 1988 and was listed final on the NPL in February 1990. In March 1992, EPA initiated the RI/FS to address all potential source areas and associated contamination at the site.

<Figure>

RESULTS OF THE REMEDIAL INVESTIGATION

The RI investigated the nature and extent of contamination on and near the Site, and defined the potential risks to human health and the environment posed by the Site. A total of forty one (41) groundwater, sixty five (65) soil, seven (7) surface water, and seven (7) sediment samples were collected during the RI. More detailed information on the sampling locations, procedures, and results can be found in the RI/FS report, as well as the Baseline Risk Assessment.

Soil Contamination

Soil analyses indicate that volatile organic, semi-volatile organic, pesticide/PCB and inorganic chemicals are present above background levels. However, as concluded by the Baseline Risk Assessment and the RI, the levels of these contaminants are low enough not to pose a threat to human health or the environment. Due to a concern over the high variance of manganese levels in the surface soil background samples, additional sample(s) will be taken during the Remedial Design to confirm that this variance is consistent with the environmental setting.

Surface Water & Sediment Contamination

Surface water analyses indicate that volatile organic and inorganic chemicals are present in the on-site drainage and the Unnamed Stream.

Sediment analyses indicate that volatile organic, semi-volatile organic, pesticide/PCB, and inorganic chemicals are also present in the on-site drainage and the Unnamed Stream. As with soil, the levels of these contaminants are low enough not to pose a threat to human health or the environment. Because the volatile organic, tetrachloroethene, was detected at elevated levels in the background surface water and sediment samples, additional surface water and sediment sample(s) will be collected to ensure that the background location used has not be impacted by Site characteristics.

Groundwater Contamination

Groundwater analyses indicate that volatile organic, pesticides, PCBs, and inorganic chemicals are present above background levels. In contrast to the surface water, sediment, and soils analyses, the Baseline Risk Assessmen concluded that three (3) volatile organics (trichloroethene, vinyl chloride, 1,2 dichloroethene) and one (1) inorganic (manganese) pose a risk to human health and the environment. All three (3) of the volatile organics exceeded the Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act. The approximate areal extent of groundwater contamination is illustrated in Figure 2. The levels of volatile contamination indicate the likelihood of Dense Non-Aqueous Phase Liquids (DNAPLs) within the groundwater media.

Due to the fact that Site-related contamination was detected at very low levels at PW-04 (Fig. 2), further evaluation of the construction characteristics of this well will be required in the Remedial Design. If the screening depth of this well exceeds the screening depths of the on-Site wells, additional wells may be required to fully demonstrate that there is no aquifer contamination at that screening depth that may be of concern.

<Figure>

SUMMARY OF SITE RISKS

The Baseline Risk Assessment (BRA) describes the risks to human health and the environment which would result were the contamination not remediated.

The BRA proceeds in a series of steps: Initially, Contaminants of Potential Concerns (COPCs) are identified. This list of COPCs includes all chemicals present that may pose a potential risk to human health or the environment. The Exposure Assessment considers the present population potentially exposed to Site-related hazards, including on-site workers, and visitors. In addition, potential future use scenarios, such as a future residential scenario, are developed to determine "pathways" through which persons could potentially be exposed to the contaminants.

The pathways of exposure can be evaluated by making assumptions such as the

length and number of times persons may be exposed and how much of the chemical is ingested. Thus, a calculation can be made using known health effects and reasonable exposure assumptions for each contaminant.

Both carcinogens, substances known or suspected to cause cancer, and non-carcinogens, substances which do not cause cancer, but are hazardous and cause damage to human health through other effects, are considered in the Risk Assessment.

For carcinogens, the result is expressed as the excess cancer risk posed by Site contaminants. EPA has established a range of 1x10[-4] to 1x10[-6] as acceptable limits for lifetime excess carcinogenic risks. Excess risk in this range means persons exposed to Site contaminants under the exposure scenarios evaluated stand a 1 in 10,000 to 1 in 1,000,000 chance of developing cancer as a result of that exposure. For each pathway, the cancer risk from each individual contaminant is added together because, in a "worst-case" scenario, a person could be exposed through several, or all, of the possible pathways. Non-carcinogenic risk is expressed as a Hazard Index (HI). The HI is the ratio of the amount of chemical taken in, divided b the reference dose, which is an intake amount below which no adverse effects are known to occur. As for cancer risk, for each pathway, the HI for the individual contaminants are added together.

Carcinogenic risk and non-carcinogenic risk were calculated for the potential on-site future residential use scenario. The future residential use scenario has a carcinogenic risk of 2x10[-2]. This level of risk results from exposure to contaminated groundwater via ingestion as drinking water. This value is not within the acceptable risk limit. For the non-carcinogenic risk, the future use HI is 950 which is also well above the EPA benchmark of 1.0. Likewise, the HI is the result of ingestion of contaminated groundwater. The most serious pathway and use at the Site is:

FUTURE RESIDENTIAL USE: Adult or child -- Ingestion of groundwater (carcinogenic and non-carcinogenic)

More detailed information on the Site risks is presented in the Baseline Risk Assessment.

Actual or threatened releases of hazardous substances from this Site, if not addressed by the preferred alternative, or one of the active measures considered, may present a current or potential threat to public health, welfare, or the environment.

REMEDIAL OBJECTIVES AND ALTERNATIVES

Remedial Action Objectives

Based on the RI and the BRA, EPA has established the following remedial action objectives for the Rutledge Property Superfund Site:

- Prevent ingestion of groundwater containing any carcinogen

concentrations above federal or state limits, or if there is no established limit, above levels which would allow a remaining excess cancer risk greater than the 10[-4] to 10[-6] range.

- ù Prevent ingestion of groundwater containing any non-carcinogen concentrations above federal or state limits, or if there is no established limit, above levels which would allow an unacceptable remaining non-carcinogenic threat (HI greater than 1).

- ù Restore the groundwater system to potential productive use, by remediating to the standards described above, and by preventing the migration of the groundwater contamination beyond the existing limits of the contaminant plume.

Establishment of Remediation Levels

EPA has established specific remediation levels (goals), or clean-up standards, for the groundwater contaminants present within the plume at the Rutledge Property Site. Such standards are established under several federal environmental laws including the Safe Drinking Water Act (for water systems and potable water sources such as groundwater). The State of South Carolina has similar statutes. Most of the contaminants present at the Site are regulated under these federal and state standards. In cases where ther is no state or federal standard, groundwater remediation levels were developed in the Feasibility Study (FS) based on human health (BRA calculations). There are no soil remediation levels. Table 1 summarizes remediation levels for the groundwater at the Site.

<Figure>

Development of Remedial Alternatives

In the FS, remedial alternatives were constructed and evaluated for groundwater contamination. To formulate the alternatives for cleanup, all of the possible technologies, processes, and methods which could be utilized in a cleanup effort were evaluated, and those which could not be used at the Site were screened out. The screening criteria employed are primarily site-specific factors that make some of the technologies or processes ineffective, difficult to implement, or infeasible. Such factors include soil type, geology/hydrogeology, site location, and the volume of the contaminated media. Technologies and processes considered to be potentially useful were then grouped together into remedial alternatives to address groundwater contamination. The resulting alternatives were then evaluated and compared to one another in detail.

SUMMARY OF REMEDIAL ALTERNATIVES

Six (6) alternatives to address groundwater contamination were developed and

compared in the FS. The first two (2) alternatives are "No Action" and "Limited Action". The next two (2) alternatives provide groundwater extraction with treatment on-site, the difference being the number of extraction wells used to extract the groundwater. The final two (2) alternatives provide groundwater extraction with one (1) or two (2) wells and direct discharge to the Publically Owned Treatment Works (POTW).

All of the alternatives considered were subject to the following assumptions and requirements:

- ù Area of groundwater contamination is 239,000 ft[2]
- ù Depth of contamination is 54 ft
- ù Volume of contaminated water is approximately 7,338,000 gal
- ù Present Worth (PW) cost assumes an annual 7% discount (interest) rate

For each alternative, remedial action objectives will be considered satisfied when the remediation goal standards are not exceeded in any of the monitoring wells. At the start of the design phase, EPA or the Potentially Responsible Party (PRP) will initiate periodic groundwater monitoring at the Site.

The cost given for each alternative is the Total Present Worth (PW) of capital costs plus Operation and Maintenance (O&M) costs. More detailed descriptions of the strengths and weaknesses of each alternative in terms of EPA's nine (9) standard criteria, can be found in the FS.

Alternative 1 - No Action

CERCLA requires that EPA evaluate a "No Action" alternative to serve as a basis against which other alternatives can be compared. Under this alternative, no actions are taken, nor are funds expended, for control or remediation of the contaminated groundwater. Because contaminants would be left on-Site under this alternative, a review is required every five (5) years in accordance with the requirements of CERCLA. This alternative would also require monitoring and the costs associated with laboratory analysis and report writing.

Under this alternative, Site conditions would remain unchanged. Therefore, contaminated groundwater would continue to present an unacceptable health risk now in the future.

Total Present Worth (PW) Cost: $170,000
Estimated Capital Cost: none
Estimated Annual O&M Cost: none
Implementation Timeframe (months): 0

Alternative 2 - Limited Action

Under this alternative, limited action (institutional controls) would be implemented to restrict the withdrawal and use of groundwater from the

contaminated plume. The institutional controls would consist of deed restrictions to control future use of land and groundwater, and long-term monitoring as presented in Alternative 1.

Deed restrictions would also be utilized to prevent future use of the aquifer for such purposes as potable and industrial water supplies, irrigation, and washing. Permit restrictions issued by the State of South Carolina would restrict all well drilling permits issued for public wells on properties that may draw water from the contaminated groundwater plume. These restrictions could be written into the property deeds to inform future property owners of the possibility of contaminated groundwater beneath their property.

A second component of this alternative would be monitoring of Site groundwater conditions. Groundwater samples from the wells would be collected and analyzed periodically to evaluate contaminant concentrations and to monitor the extent and direction of contaminant direction.

Total Present Worth (PW) Cost: $170,000
Estimated Capital Cost: none
Estimated Annual O&M Cost: $ 35,750
Implementation Timeframe (months): 0

Alternative 3A - Groundwater Pumping by 1 Extraction Well and On-Site Treatment With Discharge to Surface Water

Under this alternative, one (1) extraction well would be used to contain the contaminated groundwater plume. The extraction well would be located on the northeast corner of the property, near the downgradient edge of the plume. The contaminated groundwater would flow into the well and would then ge pumped to the surface. The water would then go through an on-Site treatment system composed of neutralization, oxidation, sedimentation, filtration, and carbon adsorption. As the contaminated water passes through this treatment "train", the volatile organics 1,2 dichloroethene, trichlorethene, and vinyl chloride, as well as the inorganic manganese, will be reduced to their respective remediation levels. The "clean" water would then be discharged to the surface water in accordance with National Pollutant Discharge Elimination System (NPDES) requirements. Deed restrictions and long-term groundwater monitoring as described in Alternative 2 would also be enforced.

Total Present Worth (PW) Cost: $4,115,000
Estimated Capital Cost: $ 872,000
Estimated Annual O&M Cost: $ 348,000
Implementation Timeframe (months): 24

Alternative 3B - Groundwater Pumping by 2 Extraction Wells and On-Site Treatment With Discharge to Surface Water

This alternative is identical to Alternative 3A except for the fact that two (2) extraction wells would be used to contain the contaminated groundwater

plume instead of one (1). As in Alternative 3A, one (1) well would be located on the downgradient edge of the plume. An additional extraction well would be centrally located in the source area (Figure 2, MW-03). The advantage of adding an additional well in this location would be that the contaminants are removed from the aquifer more quickly than if only one extraction well is used to remove the contaminated groundwater. The treatment train, surface water discharge, deed restrictions, and long-term groundwater monitoring would be enforced as indicated in Alternative 3A.

Total Present Worth (PW) Cost: $4,159,000
Estimated Capital Cost: $ 915,000
Estimated Annual O&M Cost: $ 348,000
Implementation Timeframe (months): 24

Alternative 4A - Groundwater Pumping by 1
Extraction Well and Direct Discharge to POTW

Under this alternative, the groundwater contaminant plume would be contained by one (1) extraction well located on the downgradient edge of the plume. As opposed to Alternatives 3A and 3B, the contaminated groundwater would then be discharged, via sewer line, to the local POTW. No pretreatment would be required prior to discharging the contaminated groundwater to the sewer line. Again, deed restrictions, and long-term groundwater monitoring would be enforced as in Alternatives 3A and 3B.

Total Present Worth (PW) Cost: $1,969,000
Estimated Capital Cost: $ 249,000
Estimated Annual O&M Cost: $ 225,000
Implementation Timeframe (months): 12

Alternative 4B - Groundwater Pumping by 2
Extraction Wells and Direct Discharge to POTW

Likewise, this alternative is identical to Alternative 4A, except for the fact that two (2) extraction wells would be used to contain the contaminate groundwater plume instead of one (1). Similarly, one (1) well would be located on the edge of the plume, while the other located in the source area (Figure 2, MW-03). Discharge to sewer line (without pretreatment), deed restrictions, and long-term groundwater monitoring would be enforced as in Alternatives 3A, 3B, and 4A.

Total Present Worth (PW) Cost: $2,031,000
Estimated Capital Cost: $ 312,000
Estimated Annual O&M Cost: $ 225,000
Implementation Timeframe (months): 12

Please refer to Table 2 below for a brief summary of the remedial alternatives, and their respective costs.

<Figure>

Evaluation of Remedial Alternatives

In selecting its preferred alternative, EPA used the following criteria to evaluate the alternatives developed in the FS. Seven (7) of the criteria were used to evaluate all of the alternatives, based on environmental protection, cost, and engineering feasibility issues. The preferred alternative, along with the other proposed alternatives, will be further evaluated against the final two (2) modifying criteria, state and community acceptance, after the public comment period has ended and all comments from the community and state have been received.

THRESHOLD CRITERIA: The first two (2) statutory requirements must be met by the alternative.

1. Overall Protection of Human Health and the Environment addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are eliminated, reduced, or controlled.

THRESHOLD CRITERIA: The first two (2) statutory requirements must be met by the alternative.

1. Overall Protection of Human Health and the Environment addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are eliminated, reduced, or controlled.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not an alternative complies with all state and federal environmental and public health laws and requirements that apply, or are relevant and appropriate, to the conditions and remediation options at a specific site.

PRIMARY BALANCING CRITERIA: These five (5) considerations are used t develop the decision as to which alternative should be selected.

3. Long-Term Effectiveness and Permanence refers to the ability of an alternative to maintain reliable protection of human health and the environment, over time, once the remediation levels are achieved.

4. Reduction of Toxicity, Mobility, and Volume (T/M/V) addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce the toxicity, mobility, and volume of the hazardous substance.

5. Short-Term Effectiveness addresses the impacts of the alternative on human health and the environment during the construction and implementation phase, until remedial action objectives have been met.

6. Implementability refers to the technical and administrative feasibility of implementing an alternative, including the availability of various services and materials required for its implementation.

7. Cost consists of the capital (initial) costs of implementing an alternative, plus the costs to operate and maintain (O&M) the alternative over the long term. Under this criteria, the cost effectiveness of the alternative can be evaluated.

MODIFYING CRITERIA: These two (2) considerations indicate the acceptability of the alternative to the public, local, or state officials.

8. State Acceptance addresses whether, based on its review of the RI/FS and the Proposed Plan, the State concurs with, opposes, or has no comments on the selected preferred alternative, or remedy.

9. Community Acceptance addresses whether the public agrees with EPA's selection of the preferred alternative. Community acceptance of this Proposed Plan will be evaluated based on comments received during the upcoming public meeting and during the public comment period.

EPA'S PREFERRED ALTERNATIVE

After conducting a detailed analysis of all of the alternatives, EPA has selected the following alternative for remediation of the Site:

Alternative 4-B
Groundwater: Extraction (2 wells) &
Direct Discharge to POTW
Total PW Cost: $2,031,000

Rationale for the Preferred Alternative

EPA has selected Alternative 4-B as the best alternative for use at the Rutledge Property Site.

Of the six (6) alternatives reviewed by EPA, both Alternative 1 and Alternative 2 fail to meet the threshold criteria of protecting human health and the environment, and compliance with ARARs. Therefore, these two (2) alternatives were eliminated

Of the remaining four (4) alternatives that meet the two aforementioned threshold criteria, they all meet the five (5) primary balancing criteria of long-term effectiveness, reduction of T/M/V, short-term effectiveness implementability, and cost, but to varying degrees. The major differences being in short-term effectiveness, implementability, and cost.

Alternatives 4-A and 4-B do not require a treatment system to be built on-Site. Rather, the contaminated groundwater would be pumped directly, via sewer line, to the local POTW and treated by the POTW. Therefore, Alternatives 4-A and 4-B short-term effectiveness is increased since it will

be faster to implement due to the fact that the system does not require a complex treatment system to be designed and built on-Site. Additionally, the ease of implementability for Alternatives 4-A and 4-B are far greater than Alternatives 3-A and 3-B. As a result, the cost of Alternative 4-A and 4-B is less than Alternatives 3-A and 3-B.

Between Alternatives 4-A and 4-B, the difference is merely the number of extraction wells to be utilized. EPA feels that, by using multiple extraction wells, the groundwater contamination will be removed from the contaminated media more rapidly, resulting in a more expeditious remediation.

Therefore, based on these comparisons, EPA believes that based on the information currently available, Alternative 4-B provides the best balance of compliance among the other alternatives with respect to the evaluation criteria for the remediation of the contaminated groundwater at the Rutledge Property Site. Employing this alternative will protect human health and the environment, meet ARARs, be effective in the long-term, reduce contaminant toxicity, mobility, and volume, be easy to implement, and will be very cost-effective.

PUBLIC PARTICIPATION

EPA will hold a public meeting on Tuesday, March 1, 1994, to discuss the Preferred Alternative and other alternatives evaluated in the FS. Officials from EPA and SCDHEC will present a summary of the RI/FS, the remedial alternatives, and how the preferred alternative was selected. The public is encouraged to attend this meeting.

EPA is also conducting a 30-day public comment period from Friday, February 18, 1994, to Monday, March 21, 1994, in order to receive public input and comments on the preferred alternative for remediation of the Rutledge Property Superfund Site. Comments on the preferred alternative, the other alternatives, or other issues related to the Site remediation, are welcomed, as they are an important part of the decision-making process. Please send all comments to:

Mr. Samford T. Myers
North Superfund Remedial Branch
U.S. Environmental Protection Agency
Region IV, 345 Courtland Street, N.E.
Atlanta, Georgia 30365

EPA will review, and consider, all comments received during the publi comment period and the public meeting before reaching a final decision on the most appropriate remedial alternative for the remediation of the Site. EPA's final decision will be issued in the Record of Decision (ROD), a legal document which formally sets forth the remedy. A Responsiveness Summary, which contains all of the public comments received and EPA's response to them, is part of the ROD. A ROD is expected to be completed for the Rutledge Property in the spring of 1994.

For more information on community relations, the Superfund process, or this Site in particular, please contact:

Ms. Cynthia Peurifoy
Public Relations Coordinator
U.S. Environmental Protection Agency
Region IV, 345 Courtland Street, N.E.
Atlanta, Georgia 30365

(404)347-7791 or (800)435-9233

FUTURE ACTIVITIES

Upon signature of the ROD at EPA Region IV in Atlanta, EPA will evaluate the situation with regard to the Potentially Responsible Parties (PRPs) at this site. EPA will then try to negotiate with the PRP(s) to secure performance and funding of the remedy under EPA's oversight. If EPA cannot reach an agreement with the PRPs, then EPA will proceed with Remedial Design/Remedial Action using CERCLA trust funds.

GLOSSARY

Administrative Record - A file which is maintained and contains all information used by the EPA to make its decision on the selection of a response action under CERCLA. This file is required to be available for public review and a copy is to be established at or near the site, usually at the information repository. A duplicate file is maintained in a central location such as a regional EPA and/or state office.

Applicable or Relevant and Appropriate Requirements (ARARs) Requirements which must be met by a response action selected by EPA as a site remedy. "Applicable" requirements are those mandated under one or more Federal or State laws. "Relevant and appropriate" requirements are those which, while not necessarily required, EPA judges to be appropriate for use in that particular case.

Aquifer - An underground geological formation, or group of formations, containing usable amounts of groundwater that can supply wells and springs.

Baseline Risk Assessment - An assessment which provides an evaluation of the potential risk to human health and the environment in the absence of remedial action.

Carcinogens - Substances that cause or are suspected to cause cancer.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - A federal law passed in 1980 and modified in 1986 by th Superfund Amendments and Reauthorization Act (SARA). The Acts create a trust fund, known as Superfund to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Dense Non-Aqueous Phase Liquids (DNAPL) - Dense non-aqueous liquids (DNAPLs) are chemical compounds that are heavier than water in there pure form. DNAPL migration is gravity driven and relatively unaffected by groundwater flow and often moves in a manner that is independent of groundwater flow. DNAPL contaminants (especially chlorinated organic solvents) migrate vertically through fractures in rock or clay formations and thus, can contaminate deep aquifer systems.

Feasibility Study - See Remedial Investigation/Feasibility Study.

Groundwater - Underground water that fills pores in soils or openings in rocks. This water can be used for drinking, irrigation, and other purposes.

Hazard Index -A term used in the Baseline Risk Assessment which estimates the exposure effects to non-carcinogenic contaminants at a hazardous waste site. A HI less than 1.0 indicates that a significant hazard is likely, a HI grater than 1.0 indicates hazard at the site.

<Figure>

Information Repository - Materials on Superfund and a specific site located conveniently for local residents.

Maximum Contaminant Levels (MCLs) - The maximum permissible level of a contaminant in water that is consumed as drinking water. These levels are determined by EPA and are applicable to all public water supplies.

National Priorities List (NPL) - EPA's list of uncontrolled or abandoned hazardous wastes sites eligible for long-term clean up under the Superfund Remedial Program.

Plume - A three dimensional zone within the groundwater that contains contaminants and generally moves in the direction of, and with, groundwater flow.

Potentially Responsible Parties (PRP's) - This may be an individual, a company or a group of companies who may have contributed to the hazardous conditions at a site. These parties may be held liable for costs of the remedial activities by the EPA through CERCLA Laws.

Public Comment Period - Time provided for the public to review and comment on a proposed EPA action or rulemaking after it is published as a Proposed Plan.

Record of Decision (ROD) - A public document that explains which cleanup alternative will be used at a National Priorities List site and the reasons for choosing the cleanup alternative over other possibilities.

Remedial Design/Remedial Action (RD/RA) - The remedial design (RD) is a plan formulated by either the PRP or EPA or both to provide the appropriate measures to remediate a hazardous waste site. This plan may be modified many times through negotiations between EPA an the PRP. The remedial action (RA) is the implementation of the remedial design.

Remedial Investigation/Feasibility Study (RI/FS) - Two distinct but related studies, normally conducted together, intended to define the nature and extent of contamination at a site and to evaluate appropriate, site-specific remedies.

Superfund Amendments and Reauthorization Act (SARA) - Modifications to CERCLA enacted on October 17, 1986.

<Figure>

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the Rutledge Property Superfund Site is important in helping EPA select a final remedy for the site. You may use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

REQUEST TO BE PLACED ON THE
RUTLEDGE PROPERTY SUPERFUND SITE MAILING LIST

If you would like your name and address placed on the mailing list for the Rutledge Property Superfund Site, please complete this form and return to: Cynthia Peurifoy, Community Relations Coordinator, EPA-Region IV, North Superfund Remedial Branch, 345 Courtland Street, Atlanta, Georgia 30365, or call 1-800-435-9233.

NAME:

ADDRESS:

TELEPHONE:

AFFILIATION:

Attachment B

Public Notices of Public Comment Period and Extension
of Public Comment Period

U.S. ENVIRONMENTAL PROTECTION AGENCY
INVITES PUBLIC COMMENT ON THE PROPOSED CLEANUP
PLAN FOR THE RUTLEDGE PROPERTY SUPERFUND SITE,
ROCK HILL, YORK COUNTY, SOUTH CAROLINA

The U.S. Environmental Protection Agency is inviting public comment on the Proposed Plan for cleanup of the Rutledge Property/Rock Hill Chemical Company Superfund Site. The Remedial Investigation/Feasibility Study for

the site have been completed. The Remedial Investigation determined the nature and extent of contamination at the site. The Feasibility Study evaluated alternatives for addressing groundwater contamination at the site, the principal threat posed by the site.

Six alternatives were considered in proposing this action. The figures in parentheses are the estimated present worth costs for each alternative. The following alternatives were considered:

Alternative 1: No Action ($170,000)
Alternative 2: Limited Action ($170,000)
Alternative 3A: Groundwater Extraction & Treatment, On Site Treatment and Discharge,
One Extraction Well ($4,115,000)
Alternative 3B: Groundwater Extraction & Treatment, On-Site Treatment and Discharge,
Two Extraction Wells ($4,159,000)
Alternative 4A: Groundwater Extraction & POTW Discharge, One Extraction Well ($1,969,000)
Alternative 4B: Groundwater Extraction & POTW Discharge, Two Extraction Wells ($2,031,000)

EPA is proposing implementation of Alternative 4B. EPA believes that employing this alternative will protect human health and the environment, meet applicable or relevant and appropriate requirements, be effective in the long-term, reduce contaminant toxicity, mobility and volume, be easy to implement, and will be cost effective.

The scope of the proposed action includes containment of the contaminated groundwater plume by two extraction wells to be located on the down gradient edge of the plume. The contaminated groundwater would then be discharged, via sewer line, to a local publicly owned treatment works (POTW). No pretreatment would be required before the contaminated groundwater is discharged to the sewer line. Deed restrictions, and long-term groundwater monitoring would be enforced. It is estimated that it will take one year to implement this remedy.

The Agency is holding a 30-day comment period, which begins on Tuesday, February 22, 1994, and ends on Thursday, March 24, 1994. Written comments, which must be postmarked no later than March 24, 1994, should be send to:

Mr. Sandy Myers, Remedial Project Manager
North Superfund Remedial Branch
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, N.E., Atlanta, GA 30365

EPA has scheduled a public meeting to present the proposed plan and to discuss the status of the Remedial Investigation/Feasibility Study. The meeting also provides the public an opportunity to submit oral and written comments on the proposed cleanup plan and the other alternatives considered. This meeting will be:

Date: Tuesday, March 1, 1994
Time: 7:00 p.m.

Place: SULLIVAN MIDDLE SCHOOL
1825 Eden Terrace, Rock Hill, South Carolina

Copies of the proposed plan, as well as the administrative record for the site, are available for review at the site information repository, which is in the York County Library, 138 East Black Street, Rock Hill, SC, 803/324-3055. These documents are also available for review at the EPA Records Center, 345 Courtland Street, N.E., Atlanta, GA 30365, 404-347-0506

For additional information, or to be added to EPA's mailing list for the site, contact Cynthia B. Peurifoy, Community Relations Coordinator, at 1-800-435-9233, or 404/347-7791.

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Announces an Extension of the Public Comment Period for the
Proposed Plan, Rutledge Property Superfund Site,
Rock Hill, York County, South Carolina

The U. S. Environmental Protection Agency (EPA) is extending the period of time for accepting public comments on the Agency's proposed cleanup plan, and the other alternatives considered for the Rutledge Property Superfund Site to Monday, April 25, 1994. Written comments, which must be postmarked on or before April 25, 1994, should be sent to:

Sheri Panabaker, Remedial Project Manager
U.S. EPA, Region IV, North Superfund Remedial Branch
345 Courtland Street, N.E., Atlanta, Georgia 30365

EPA will not make a final cleanup decision for the site until it has reviewed and considered all public comments it receives. Based on public comments or new information, the EPA may decide on another alternative, rather than the plan that has been proposed. Therefore, it is important to comment on the proposed plan and the other alternatives evaluated in the feasibility study. Comments can also be made on any documents contained in the Administrative Record for the site. The administrative record contains all documents, reports, and other material the EPA relied upon in reaching a decision on the selection of the proposed plan. The Administrative Records, which includes the feasibility study and EPA's proposed plan are available for public review at the Rutledge Site Information Repository located at:

York County Library, 138 East Black Street,
Rock Hill, South Carolina 29731, (803)324-3055

These documents are also available for review at the EPA Records Center in Atlanta, GA. For more information, to request a copy of the proposed plan or to be added to the site's mailing list, please contact:

Cynthia Peurifoy, Community Relations Coordinator
U.S. EPA, Region IV, North Superfund Remedial Branch
345 Courtland Street, N.E., Atlanta, Georgia 30365

Attachment C

Written Public Comments Received
During the Public Comment Period

April 21, 199

Mr. Samford T. Myers
North Superfund Remedial Branch
U S Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Rutledge Property (Rock Hill Chemical Company) Superfund Site
Rock Hill, South Carolina

Dear Mr. Myers:

RMT, Inc. reviewed the United States Environmental Protection Agency (EPA) Administrative Record located at the York County Public Library for the Rutledge Property Superfund Site on behalf of the following companies: BASF Inmont Corporation, Burlington Industries, Inc., Chase Packaging Corporation, CTS Corporation, Engraph, Inc., FMC Corporation, Homelite Division of Textron, Inc., Rexham, Inc., W.R. Grace and Company, and Celanese. The comments included below are being submitted by these companies in response to EPA's Superfund Proposed Plan Fact Sheet for the Rutledge Property (Rock Hill Chemical Company) Superfund Site, dated February 1994.

The EPA's Remedial Investigation and Feasibility Study (RI/FS) is summarized in the paragraphs below to provide context for the comments that follow. By way of background, EPA's contractor conducted a geophysical survey to identify buried objects, then collected 22 surface soil samples evenly spaced across the site to identify potential hot spots. Afterwards, the contractor collected 40 subsurface soil samples from 16 locations and installed five pairs of ground water monitoring wells on-site (each pair consisted of a shallow well screened at the top of the surficial aquifer and a deep well screened at the top of bedrock or several feet into the bedrock). EPA sampled the ten new wells, three existing monitoring wells, one out-of-service commercial well, and three off-site private wells. EPA then installed and sampled three more well pairs to fill data gaps in the monitoring well network. EPA also sampled surface water and sediment in on-site drainage areas and conducted an ecological screening.

EPA concluded from the investigation results that ground water contamination at the site presents an unacceptable risk for a future residential land use

scenario. The contaminants in ground water that pose an alleged health risk are trichloroethene (TCE, max. concentration = 84,000 ug/l), 1,2-dichloroethene (1,2-DCE, max. concentration = 1,200 ug/l), vinyl chloride (VC, max. concentration = 26 ug/l), and manganese (max. concentration = 3,600 ug/l). EPA's risk calculations resulted in an estimated excess cancer risk of approximately 5 x 10[-2]. EPA believes that manganese concentrations present an unacceptable health risk based on a calculated hazard index of 25.

The baseline risk assessment showed that soils on-site are within acceptable risk limits. No risk-based remedial goal options have been identified for surface soils. EPA determined that the hazard index for manganese in soil, which it calculated as 5.75, was high but acceptable. Likewise, EPA concluded that risks posed by volatile organic compound (VOC) and metals concentrations in the drainage areas were acceptable.

The Feasibility Study (FS) contains EPA's preferred cleanup goals for ground water, which include the promulgated Maximum Contaminant Levels (MCLs) for TCE, 1,2-DCE, and VC. For manganese, EPA set a cleanup goal of 200 ug/l based on an average background concentration of 185 ug/l. In the FS, EPA presented six possible remediation alternatives, including no action and limited action (deed restrictions, long-term ground water monitoring). The four alternatives requiring action consisted of ground water extraction and either 1) treatment on-site with discharge to surface waters or 2) no treatment with discharge to the City of Rock Hill Publicly Owned Treatment Works (POTW).

EPA's Superfund Proposed Plan Fact Sheet for the Rutledge Property Superfund Site states EPA's preference for Alternative 4-B, which includes extraction of ground water via two recovery wells, discharge to the POTW, deed restrictions, and long-term ground water monitoring. While the RI does not provide evidence that any remedy is necessary, Alternative 4-B appears to be a practical remedy for the Rutledge site if one is required. However, while reviewing the Administrative Record, we noted several issues that may impact the scope and cost of the remedy and which deserve comment. These issues include the following:

- The Record of Decision (ROD) should acknowledge that the Remedial Design for Alternative 4-B can be simplified and shortened by eliminating the Intermediate Design (60%) submittal. An intermediate submittal is unnecessary for such a straightforward design. EPA will be able to judge the technical aspects of the design basis from the Preliminary Design (30%) submittal. Since Alternative 4-B has no treatment component, the only engineering review required for the design will be the extraction wells and the connecting pipeline to the sewer system. These elements can easily be reviewed and revised in conjunction with the Prefinal/Final Design reports.

- We did not find in the Administrative Record reference to an agreement between EPA and the City of Rock Hill that the POTW

would accept the extracted ground water. Evidence of such an agreement should be reflected in the Record. If this has not already been done, the POTW should be contacted to determine effluent acceptability and to obtain such an agreement prior to issuing the Record of Decision.

- ù EPA's ground water cleanup goal for 1,2-dichloroethene is 70 ug/l. The Performance Standard for 1,2-DCE should be split into two standards to reflect the MCLs of the cis-and trans- isomers of 1,2-DCE. The trans- isomer has a higher MCL of 100 ug/l. The lower standard for the cis- isomer would apply whenever analytical results are reported as "total 1,2-dichloroethene."

- ù The RI recommended additional study of the ecological communities that could be impacted by this site, even though the RI report states that the site does not pose a threat to any state or federally listed species of concern. The RI's surface soil results show that further migration of site contaminants to receiving waters is not anticipated. The EPA's ecological screening did not identify any sensitive ecological communities

immediately downstream of the site. An ecological study is therefore likely to be unproductive, and the money for it would be better spent on cleanup.

- ù The RI Report recommended logging the depths of private wells PW-03 and PW-04 to evaluate whether further characterization is needed, since chemicals detected in PW-03 and PW-04 are similar to those detected on-site. The monitoring well network constructed by EPA during the RI is extensive and appears to be sufficient to make a determination now that these constituents are not site related. Further ground water investigation is unwarranted and will delay cleanup activities and divert funds that are best spent on cleanup.

- ù The VOCs detected during the RI were found in both top-of-rock and shallow wells. The Superfund Proposed Plan Fact Sheet does not specify whether the extraction wells will be constructed into rock. Extraction of ground water from bedrock fractures for remediation purposes is difficult and, in most cases of Piedmont lithology, technically impracticable. At most, the two extraction wells proposed in Alternative 4-B should be constructed into the first few feet of bedrock, where the rock is highly weathered and fractured. The screen should be set to withdraw from both the saprolite and the weathered rock. Any attempt to construct wells that are screened in competent bedrock is expected to result in a relatively useless extraction well, since the odds of intercepting a producing fracture that is connected to the small plume found by EPA's investigation are minute.

Please place these comments in the Administrative Record and consider them

in the preparation of the Record of Decision for the Rutledge Property Superfund Site.

Sincerely,

RMT, Inc.

Paul A. Furtick
Project Manager

cc: Rock Hill Chemical Company Site Generator PRPs

April 25,1994
823 Standard St.

Rock Hill, S. C.
29730

Ms. Sheri Panabaker
Remedial Project Manager
U.S.EPA, Region IV
North Superfund Remedial Branc
345 Courtland St.
N.E. Atlanta, Georgia 30365

Dear Ms. Panabaker,

I received your handout advising me about an Extension of the Public Comment Period for the Proposed Plan, Rutledge Property Superfund Site, Rock Hill,S.C.I participated in your meeting on March 1, 1994 concerning the above. The input I added as well as other citizens, I hope will be reviewed and consideration given our concerns.

In your notification of an extension, you indicated that the EPA may decide on another alternative rather than the plan that had been proposed. If this alternative plan is different from those discussed on March 1, I would like to be made aware of the plan chosen so that I and other citizens may make further comments. At the meeting the alternative plan being considered was Alternative Plan 4B - Groundwater Pumping by 2 Extraction Wells and Direct Discharge to POTW. MY concern with this method that was tentatively selected, or any other method is that an additional process such as pre-treatment on site of the ground water be done before any other authority , whether it be city or private , administers the final treatment as required by the EPA Superfund Act.

You should also be concerned with the surrounding soil within the borders of the affected area to eliminate further problems down the road as you continue monotoring the superfund site. This problem I understand existed over a thirty year period. If you temporily clean the undergrond water and not pay attention to the soil which contributed to the problem, it would simply reoccur.

Other concerns that I have would be that more testing be done opposite the site on Cherry Rd. and on any bordering property that may be affected, and to insure the safety of citizens in the area,the entire site should be fenced off and signs need to be posted informing the public of any possible danger.

In closing I would like to thank you for sending me notification, and please keep me informed.

Sincerely,

Attachment D

Official Transcript of the Proposed Plan Public Meeting

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV PROPOSED PLAN MEETING FOR THE

RUTLEDGE PROPERTY (ROCK HILL CHEMICAL COMPANY)

SUPERFUND SIT

ROCK HILL, SOUTH CAROLINA

MARCH 1, 1994

REPORTER: KATHY STANFORD, CVR-CM

P R O C E E D I N G S

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV PROPOSED PLAN MEETING FOR THE
RUTLEDGE PROPERTY (ROCK HILL CHEMICAL COMPANY)
SUPERFUND SITE
MARCH 1, 1994
7:10 P.M.

SANDY MYERS: GOOD EVENING AND WELCOME TO THE PUBLIC MEETING, PROPOSED
PLAN MEETING FOR THE RUTLEDGE PROPERTY SITE. I APPRECIATE YOUR INTEREST IN
COMING TONIGHT AMID THE SEMI-MONSOON OUTSIDE. I REALLY DO APPRECIATE IT.

MY NAME IS SANDY MYERS, AND I'M THE REMEDIAL PROJECT MANAGER WITH THE
ENVIRONMENTAL PROTECTION AGENCY REGION 4, BASED IN ATLANTA. WITH ME TONIGHT
ARE FELLOW EPA EMPLOYEES CYNTHIA PEURIFOY, SHE IS THE COMMUNITY RELATIONS
COORDINATOR; BERNIE HAYES, WHO IS ANOTHER RPM OR REMEDIAL PROJECT MANAGER;
AND MARK DAVIS, WHO IS THE ATTORNEY FROM THE OFFICE OF REGIONAL COUNSEL.
ALSO WITH US TONIGHT FROM SOUTH CAROLINA DEPARTMENT OF HEALTH AND
ENVIRONMENTAL CONTROL CHUCK GORMAN, BILLY BRITTON, AND RICHARD HAYNES. THE
AGENDA FOR TONIGHT'S MEETING CONSISTS OF BASICALLY SIX SEGMENTS. I'M
OBVIOUSLY DOING THE WELCOME AND INTRODUCTIONS. CYNTHIA IS GOING TO BRIEFLY
DISCUSS THE COMMUNITY RELATIONS PROGRAM. I'M GOING TO DISCUSS THE SITE
HISTORY. BERNIE HAYES IS GOING TO DISCUSS THE BASELINE RISK ASSESSMENT
PROCESS. I'M GOING TO COME

BACK WITH THE REMEDIAL INVESTIGATION AND THE FEASIBILITY STUDY, AND THEN
WE'LL OPEN UP TO QUESTIONS AND ANSWERS. WE'RE GOING TO DO OUR BEST TO LIMIT
THIS MEETING TONIGHT TO APPROXIMATELY 45 TO 50 MINUTES SO THAT WE CAN ALL BE
OUT. I WOULD LIKE TO NOW INTRODUCE CYNTHIA PEURIFOY. SHE IS GOING TO
EXPLAIN THE SUPERFUND PROCESS IN GENERAL AND DISCUSS HOW AND WHY THE PUBLIC
PLAYS SUCH AN ESSENTIAL ROLE IN THE ULTIMATE DECISION MAKING PROCESS.

CYNTHIA PEURIFOY: GOOD EVENING. I WANT TO THANK YOU FOR COMING OUT
TONIGHT. AGAIN, MY NAME IS CYNTHIA PEURIFOY, AND I AM THE COMMUNITY
RELATIONS COORDINATOR FOR THE SOUTH CAROLINA SECTION OF EPA'S REMEDIAL
PROGRAM. I WANTED TO FIRST OF ALL SET THE STAGE FOR TONIGHT'S MEETING.
THIS IS A PUBLIC HEARING, AND WE DO NEED YOU TO COOPERATE WITH US TONIGHT BY
WHEN YOU DO HAVE A COMMENT OR A QUESTION, BY STANDING UP, IDENTIFYING
YOURSELF FOR OUR COURT REPORTER HERE AND MAKING SURE THAT SHE IS ABLE TO
HEAR WHAT YOU SAY. THAT'S VERY IMPORTANT FOR US BECAUSE WE'RE HERE TO GET
YOUR COMMENTS AND YOUR CONCERNS ABOUT THE PROPOSED PLAN. THE TRANSCRIPT
THAT SHE IS GOING TO PRODUCE IS GOING TO BE USED TO PREPARE WHAT WE

CALL A
RESPONSIVENESS SUMMARY WHERE WE WILL SIT DOWN AND WE WILL
RESPOND TO EVERY
CONCERN THAT WE HEAR HERE TONIGHT AND THROUGHOUT THIS PUBLIC
COMMENT PERIOD.
SO PLEASE COOPERATE WITH HER AN

US BY MAKING SURE THAT WE CAN HEAR WHAT YOU HAVE TO SAY. WE ARE IN
A PUBLIC
COMMENT PERIOD WHICH ENDS ON MARCH 24TH. HOWEVER, THERE IS A
PROVISION THAT
THAT COMMENT PERIOD CAN BE EXTENDED FOR AN ADDITIONAL 30 DAYS. IF
YOU FIND
THAT YOU NEED MORE TIME TO REVIEW THE DOCUMENTS OR WHATEVER OR TO
PREPARE
YOUR COMMENTS, PLEASE GET IN TOUCH WITH EITHER SANDY OR I AND WE
WILL WORK
WITH YOU TO EXTEND THAT COMMENT PERIOD IF IT'S NEEDED. I WANTED TO
DRAW
YOUR ATTENTION TO WHAT WE CALL THE SITE INFORMATION REPOSITORY. IT
IS AT
THE YORK COUNTY LIBRARY ON BLACK STREET. AND IN THAT LIBRARY, WE
HAVE
PREPARED WHAT WE CALL OUR ADMINISTRATIVE RECORD, WHICH IS A RECORD
OF ALL
THE DOCUMENTS THAT WERE COMPILED AND USED BY SANDY AND THE OTHER
PEOPLE
WITHIN THE EPA AND THE STATE TO PROPOSE THIS CLEANUP PLAN. THE
REMEDIAL
INVESTIGATION AND FEASIBILITY STUDY REPORTS ARE THERE; THE RISK
ASSESSMENT
IS THERE; EVERYTHING THAT YOU WILL SEE REFERENCED IN THE PROPOSED
PLAN FACT
SHEET IS THERE AND YOU CAN GO BY AND REVIEW IT. I WANTED TO TALK A
LITTLE
BIT ABOUT THE SUPERFUND PROCESS. AND I'M GOING TO PUT THIS UP, AND I
HOPE
YOU CAN SEE IT, JUST TO LET YOU KNOW THAT ON THIS PARTICULAR SITE WE
HAVE
BEEN THROUGH SEVERAL STEPS OF THE SUPERFUND PROCESS. AND AS YOU'LL
SEE
NUMBER 3, 4, AND 5 HAVE BEEN CIRCLED BECAUSE THAT'S REALLY WHERE WE
ARE NOW.
WE'RE MOVING OUT OF THE

FEASIBILITY STUDY. WE'RE IN THE PROPOSED PLAN. WE'RE IN THE PUBLIC
COMMENT
PERIOD. A LOT HAS GONE ON THE SITE. THE INVESTIGATION HAS BEEN

COMPLETED.
THE FEASIBILITY STUDY HAS BEEN COMPLETED. THE PROPOSED PLAN HAS BEEN
SUBMITTED TO THE PUBLIC. WHEN WE COMPLETE THIS PUBLIC COMMENT PERIOD WE
WILL BE DOING THE RESPONSIVENESS SUMMARY AS I SAID EARLIER, AND THEN WE WILL
BE PREPARING A RECORD OF DECISION. ONCE THAT IS DONE, WE WILL GO FORWARD
WITH NEGOTIATIONS WITH POTENTIALLY RESPONSIBLE PARTIES. WE'LL MOVE INTO THE
REMEDIAL DESIGN AND INTO THE CLEANUP. LET ME SAY A FEW THINGS ABOUT THE
COMMUNITY RELATIONS PROGRAM ITSELF. WE HAVE A MAILING LIST FOR THE SITE.
IF YOU'RE NOT ON THE MAILING LIST, PLEASE SEE ME OR SIGN IN THAT SHEET BACK
THERE AND WE'LL GET YOU ON THE MAILING LIST. WE DO PREPARE FACT SHEETS FROM
TIME TO TIME. IF YOU HAVE THE FACT SHEET THAT I SENT OUT RECENTLY YOU WILL
SEE AN 800 NUMBER IN THAT FACT SHEET. WE ARE ALWAYS AVAILABLE AT THAT
NUMBER TO ANSWER ANY QUESTIONS OR CONCERNS YOU MIGHT HAVE AND TO GET ANY
FEEDBACK THAT YOU MIGHT HAVE ON ANYTHING THAT YOU FEEL THAT WE NEED TO COVER
ANY INFORMATION THAT YOU DON'T HAVE THAT YOU'D LIKE TO HAVE. ONE PROVISION
OF THE SUPERFUND PROGRAM IS THAT COMMUNITIES WHERE THERE ARE SUPERFUND SITES
HAVE THE ABILITY TO APPLY FOR A TECHNICAL ASSISTANCE GRANT. THAT

IS A GRANT THAT WILL PROVIDE YOU THE ABILITY TO HIRE A TECHNICAL ADVISOR TO
ADVISE YOU ON THE DOCUMENTS AND FINDINGS THAT EPA PUTS FORTH. SO IF ANYBODY
HERE IS INTERESTED IN LOOKING INTO THE TAG PROCESS, PLEASE FEEL FREE TO SEE
ME OR CALL ME ABOUT THAT. AND FINALLY, GIVE ME YOUR FEEDBACK. LET ME KNOW
HOW THIS MEETING IS, HOW INFORMATIVE YOU THINK WE ARE. ARE WE OVER YOUR
HEADS? ARE WE NOT GETTING THE POINT ACROSS? WHATEVER. DO WE NEED TO HAVE
MORE MEETINGS? THAT IS MY ROLE TO MAKE SURE THAT THE COMMUNITY IS INFORMED
AND INVOLVED IN THE PROCESS SO PLEASE HELP ME TO DO THAT FOR YOU, AND LET ME
KNOW WHAT YOU WOULD LIKE TO HAVE. THANK YOU

SANDY MYERS: THANKS, CYNTHIA. I WOULD NOW LIKE TO JUST GIVE A VERY BRIEF SITE HISTORY. THIS SITE, HOPEFULLY YOU ALL CAN READ THIS, THIS SITE IS LOCATED ON CHERRY ROAD AT THE CORNER OF CRANFORD STREET AND FARLOW STREET. I HAVE ANOTHER SITE MAP THAT'S MORE OF A CLOSEUP AND MIGHT BE OF SOME HELP. BETWEEN 1960 AND 1964, ROCK HILL CHEMICAL COMPANY OPERATED A SOLVENT RECLAMATION FACILITY AT THAT SITE. CLASSIC WASTE PRODUCTS SUCH AS PAINT SLUDGES, TEXTILE DYE PRODUCTS, USED SOLVENTS, AND OTHER SOLID WASTES WERE GENERATED DURING THE RECLAMATION PROCESS AND WERE STORED AND DISPOSED OF AT THE SITE. THE COMPANY CEASED OPERATIONS IN THE SUMMER OF 1964. THE FOLLOWING OCTOBER A FIRE AT

THE FACILITY CAUSED DRUMS OF OIL AND CHEMICALS TO EXPLODE RELEASING THEIR CONTENTS INTO THE ENVIRONMENT. TWO REMOVALS HAVE TAKEN PLACE AT THE SITE SINCE THEN. IN 1985 A SOILS REMOVAL WAS DONE RIGHT IN THIS AREA HERE BEHIND THE BANK. AND THEN BETWEEN 1987 AND '89 ANOTHER SMALL SOILS REMOVALS AND A DRUM REMOVAL WAS DONE IN THIS AREA HERE. THE SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST IN FEBRUARY OF 1990. THIS IS SIMPLY A LIST OF CONTAMINATED SITES ACROSS THE UNITED STATES. IN MARCH OF 1992, EPA INITIATED THE R.I.F.S., OR THE REMEDIAL INVESTIGATION FEASIBILITY STUDY. AND THIS IS SIMPLY WE GO OUT AND WE FIGURE OUT THE EXTENT OF CONTAMINATION, THE TYPE OF CONTAMINATION, AND WE ALSO COME UP WITH A FEW ALTERNATIVES TO CLEAN THE PROBLEM UP. I THINK IT'S VERY IMPORTANT TO NOTE RIGHT NOW IN THE BEGINNING OF THIS TALK THAT THE RESULT OF THIS REMEDIAL INVESTIGATION INDICATES THAT WE'VE ONLY GOT A GROUNDWATER PROBLEM AT THE SITE, THEREFORE, GROUNDWATER IS GOING TO BE THE ONLY MEDIA THAT WE REMEDIATE. I WILL DISCUSS IN MORE DETAIL THE R.I.F.S. IN A FEW MOMENTS. FIRST, I'D LIKE TO INTRODUCE BERNIE HAYES. HE'S GOING TO DISCUSS THE BASELINE RISK ASSESSMENT AND HOW IT RELATES NOT ONLY TO SUPERFUND, BUT TO THE SITE IN GENERAL.

BERNIE HAYES: THANK YOU, SANDY. YOU'LL HEAR A LOT

OF TERMS TOSSED AROUND HERE TONIGHT. ONE OF THEM IS RISK ASSESSMENT SO I
WANT TO TALK A LITTLE BIT ABOUT WHAT EXACTLY THE RISK ASSESSMENT PROCESS
CONSISTS OF. I'LL TRY TO GO THROUGH THIS FAIRLY QUICKLY BECAUSE IT CAN BE A
LITTLE DRY. WHAT IS RISK ASSESSMENT? RISK ASSESSMENT IS SIMPLY AN ATTEMPT
BY TOXICOLOGISTS AND HEALTH SCIENTISTS TO QUANTIFY THE POTENTIAL IMPACT TO
PUBLIC HEALTH RESULTING FROM CONTAMINATION AT THIS SITE OR ANY OTHER SITE.
IN OTHER WORDS, RISK ASSESSMENT IS JUST LOOKING AT THE CONTAMINATION THAT
EXISTS AT THE SITE, LOOKING AT THE VARIOUS WAYS IN WHICH PEOPLE MIGHT BE
EXPOSED TO THAT CONTAMINATION, AND THEN TRYING TO QUANTIFY OR PUT A NUMBER
TO THE EFFECTS THAT MIGHT RESULT FROM THAT CONTAMINATION. THE OTHER TERM
YOU MIGHT HEAR AND SEE IN THE REPOSITORY IS BASELINE RISK ASSESSMENT.
BASELINE RISK ASSESSMENT IS THE ESTIMATE OF RISK TO THE PUBLIC HEALTH THAT
WOULD RESULT IF THE SITE WERE LEFT UNREMEDIATED. WE NOT ONLY LOOK AT THE
CURRENT RISK ASSOCIATED WITH THE SITE UNDER CURRENT LAND USE AND CURRENT
EXPOSURE SCENARIOS, BUT WE ALSO LOOK AT WHAT RISK WOULD RESULT IF WE JUST
WALKED AWAY FROM THE SITE IN THE FUTURE AND LEFT IT UNREMEDIATED. WE LOOK
AT THE RISK TO PUBLIC HEALTH UNDER FUTURE EXPOSURE SCENARIOS OF VARIOUS
TYPES. IT SAYS THAT WE TRY TO QUANTIFY THE LEVELS OR RISK. AND HOW DO WE
QUANTIFY THOSE LEVELS OF

RISK? WE ESTIMATE EXPOSURE LEVELS BY IDENTIFYING COMPLETE EXPOSURE PATHWAYS
LEADING FROM A SOURCE OF CONTAMINATION AND SUPERFUND THE SITE TO A POINT OF
HUMAN OR PUBLIC EXPOSURE. IN OTHER WORDS, THERE HAS TO BE A RELEASE OF
CONTAMINANTS FROM THE SITE. THERE HAS TO BE A WAY FOR THOSE CONTAMINANTS TO
GET FROM THE SOURCE TO A POINT OF EXPOSURE, AND THEN EXPOSURE TO THE PUBLIC
HAS TO TAKE PLACE. THIS IS AN EXAMPLE OF A COUPLE OF THE TYPES OF EXPOSURE
PATHWAYS WE LOOK AT IN A SUPERFUND RISK ASSESSMENT. WE HAVE A SITE OR A

SOURCE OF CONTAMINATION SHOWN BY THESE DRUMS LYING ON THE GROUND HERE. AND THERE ARE TWO PATHWAYS, COMPLETE EXPOSURE PATHWAYS, ILLUSTRATED. ONE WOULD BE IF CONTAMINANTS WERE RELEASED INTO THE AIR THROUGH VOLATILIZATION OR SOME OTHER PROCESS. THE WIND WOULD THEN BLOW THEM TO A POINT WHERE PEOPLE ROUTINELY WERE FOUND, AND PEOPLE WOULD BREATHE IN THOSE CONTAMINANTS WITH THE AIR. THE OTHER ONE AND THE ONE THAT IS MORE GERMANE TO THIS SITE AS SANDY HAS ALREADY MENTIONED IS THE GROUNDWATER PATHWAY WERE CONTAMINANTS FROM THE SITE COULD BE RELEASED INTO THE GROUNDWATER, FLOWS WITH THE GROUNDWATER TOWARDS THE WELL, IT'S DRAWN INTO THE WELL, AND SOMEBODY USING THAT WELL DRINKS IT OR IS EXPOSED TO IT THROUGH SHOWERING OR WASHING OR ANY OTHER PATHWAY. WE LOOK AT A LOT OF DIFFERENT PATHWAYS, NOT JUST THOSE

THAT WERE IN THAT ILLUSTRATION. AND I APOLOGIZE FOR THE CRUDITY OF THIS DRAWING HERE; IT LOOKS A LITTLE SIT LIKE ELVIS I THOUGHT. THE PRINCIPAL ROUTES OF HUMAN EXPOSURE THAT WE LOOK AT ARE: INHALATION, BREATHING IN CONTAMINANTS; INGESTION, WHICH MEANS ANYTHING TAKEN IN BY MOUTH; AND DERMAL ABSORPTION, WHICH IS THE ONE THAT NOT MANY PEOPLE MIGHT BE FAMILIAR WITH.
DERMAL ABSORPTION JUST MEANS THINGS THAT ARE ABSORBED THROUGH THE SKIN, DIRECTLY THROUGH SKIN ON ANY PART OF THE BODY. THE FIRST ONE IS INHALATION.
THIS IS PRETTY BASIC STUFF. INHALATION EXPOSURE OCCURS THROUGH THE BREATHING OF VAPORS. AN EXAMPLE OF THAT MIGHT BE AT THE GAS STATION WHERE YOU'RE PUMPING GAS AND YOU SMELL THE FUMES, THE ACTUAL GASEOUS SUBSTANCE THAT YOU BREATHE IN. THE SECOND FORM OF INHALATION EXPOSURE OCCURS THROUGH THE BREATHING IN OF CONTAMINATED DUST OR AIRBORNE PARTICLES; SOIL THAT DRYS OUT, GETS BROKEN UP, AND IS CARRIED IN THE WIND AND BREATHED IN IN THAT FASHION. THE SECOND ONE, INGESTION, CAN HAPPEN IN A LOT OF WAYS THAT WE MIGHT NOT THINK ABOUT. INGESTION CAN OCCUR THROUGH EATING CONTAMINATED FOOD

OR DRINKING CONTAMINATED WATER WHICH ARE THE ROUTES OF EXPOSURE MOST
COMMONLY --- YOU MIGHT MOST COMMONLY THINK OF. WE ALSO CAN HAVE INCIDENTAL
OR ACCIDENTAL INGESTION OF SOIL. PEOPLE ON THE SITE WHO GET SOIL ON THEIR
HANDS OR

ON THEIR BODY SOMEHOW AND ACCIDENTLY GET IT IN THEIR MOUTH. THE SAME THING
IS TRUE WITH INCIDENTAL OR ACCIDENTAL INGESTION OF CONTAMINATED WATER WHILE
SWIMMING OR BOATING OR WADING. AGAIN, ANY TIME YOU'RE IN CONTACT WITH WATER
DURING RECREATIONAL ACTIVITIES THERE'S A CHANCE THAT YOU MIGHT ACTUALLY GET
SOME OF IT IN YOUR MOUTH. AND WE LOOKED AT ALL OF THESE EXPOSURE PATHWAYS
AS PART OF THIS RISK ASSESSMENT, AND I'LL TALK ABOUT THE RESULTS OF SOME OF
THESE EXPOSURE PATHWAYS IN A SECOND. DERMAL ABSORPTION OCCURS WHEN
CONTAMINANTS ARE ABSORBED DIRECTLY THROUGH THE SKIN. SKIN IS A GOOD BARRIER
AGAINST WATER. IT'S A GOOD BARRIER AGAINST BACTERIA; CERTAIN OTHER TYPES OF
 WHAT WE CALL INORGANIC CONTAMINANTS, IN OTHER WORDS, METALS O
THINGS THAT
AREN'T ORGANIC IN NATURE, AND JUST SOILS AND DIRT AND THINGS LIKE THAT.
SKIN IS NOT A VERY EFFECTIVE BARRIER. IT'S A MUCH LESS EFFECTIVE BARRIER
AGAINST CERTAIN TYPES OF ORGANIC CONTAMINANTS. A LOT OF TIMES WHEN YOU SEE
HOUSEHOLD CLEANERS OR HOUSEHOLD CHEMICALS THAT SAY IF YOU GET IT ON YOUR
SKIN WASH IT OFF, HOUSEHOLD PESTICIDES, EVEN GASOLINE. SOME OF THE
COMPONENTS OF GASOLINE ARE A GOOD EXAMPLE. IF YOU GET IT ON YOUR SKIN, IT
CAN BE ABSORBED DIRECTLY THROUGH THE SKIN. SO WHILE SKIN IS AS A HUMAN
ORGANISM IS A PRETTY GOOD BARRIER FOR CERTAIN TYPES OF CONTAMINANTS AND
CERTAIN

TYPES OF HEALTH THREATS, IT'S NOT A GOOD ONE FOR OTHERS. TAKING INTO
ACCOUNT DERMAL ABSORPTION, INHALATION, AND INGESTION, WE LOOKED AT FOUR
EXPOSURE PATHWAYS AT THE RUTLEDGE PROPERTY SITE. THE FIRST IS JUST AN ON

SITE WORKER. ASSUMING THAT THERE MIGHT ACTUALLY BE - - - THE SITE MIGHT
ACTUALLY BE USED FOR INDUSTRIAL OR COMMERCIAL PURPOSES IN THE FUTURE. THE
SECOND IS A SITE VISITOR. ANOTHER WAY TO LOOK AT THE SITE VISITOR MIGHT BE
SITE TRESPASSER OR CHILDREN PLAYING ON THE SITE OR ANYONE JUST WALKING
THROUGH THE SITE. AND THEN THOSE TWO NOT NOTED THERE ARE CURRENT EXPOSURE
CONDITIONS THAT MIGHT EXIST NOW, BUT WE ALSO LOOKED AT FUTURE EXPOSURE
CONDITIONS. WE LOOKED AT BOTH AN ADULT AND A CHILD WHO MIGHT LIVE ON THE
SITE IN THE FUTURE. AND AS I SAID, WE LOOKED AT INHALATION, INGESTION, AND
DERMAL EXPOSURE FOR THE TWO CURRENT AND THE TWO FUTURE EXPOSURE SCENARIOS.
FOR THE ON SITE WORKER, WE JUST LOOKED AT TWO PATHWAYS. WE LOOKED AT
INCIDENTAL INGESTION OF SURFACE SOILS, IN OTHER WORDS THE SOILS THAT ARE ON
THE SURFACE THAT ARE CONTAMINATED, ACCIDENTAL INGESTION OF THOSE SOILS
THROUGH HAND TO MOUTH CONTACT WHILE SOMEONE MIGHT BE WORKING THERE WHETHER
IT BE SMOKING, EATING THEIR LUNCH, WHATEVER WAY THAT THAT MIGHT HAPPEN. AND
THEN IF THOSE CONTAMINATED SOILS GET ON THEIR HANDS OR THEIR SKIN OR THEIR
FACE AND ABSORPTION FROM THE SOIL DIRECTLY THROUGH

THE SKIN. FOR THE SITE VISITOR, WE ADDED - - - WE LOOKED AT THOSE TWO
PATHWAYS, BUT WE ADDED SOME OTHERS. IN ADDITION TO THE INCIDENTAL INGESTION
OF SOILS AND DERMAL ABSORPTION OF CONTAMINANTS FROM SOILS, WE ALSO ADDED
INCIDENTAL INGESTION OF CONTAMINATED SEDIMENTS, SEDIMENTS BEING THE MUD AND
SOIL PARTICLES THAT LIE AT THE BOTTOM OF THE STREAMS AND DRAINAGE PATHWAYS
THAT ARE ON THE SITE, AND ALSO THE INCIDENTAL INGESTION OF SURFACE WATER,
CONTAMINATED SURFACE WATER, AND THEN DERMAL ABSORPTION FROM THOSE TWO
SOURCES AS WELL. AGAIN, THIS SITE VISITOR BEING SOMEONE WHO MIGHT JUST
WANDER ONTO THE SITE AND WADE OR PLAY AS A CHILD MIGHT IN THE STREAMS THAT
ARE OUT THERE. FOR THE ADULT RESIDENT WE LOOKED AT THOSE CONTAMINANT

PATHWAYS AND THEN ADDED A FEW MORE. SO IN ADDITION TO THE ONES FOR THE SITE
VISITOR, INGESTION OF SURFACE SOILS, SURFACE WATER, SEDIMENTS, WE ADDED
GROUNDWATER. IN OTHER WORDS, PRESUMING THAT SOMEBODY MIGHT BUILD A HOUSE
THERE, DRILL A WELL INTO THE CONTAMINATED GROUNDWATER PLUME, AND DRINK THE
WATER FROM THAT WELL. IN ADDITION, WE ADDED INHALATION OF VOLATILE
CONTAMINANTS RELEASED WHILE SHOWERING WHICH IS ALSO A GROUNDWATER PATHWAY.
IF THE WATER SUPPLY FOR A HOUSE BUILT ON THAT SITE WERE A WELL DRILLED INTO
THE CONTAMINATED GROUNDWATER, THAT WELL WERE USED FOR SHOWERING, CERTAIN OF
THE CONTAMINANTS

THAT EXIST AT THE SITE WOULD BE RELEASED INTO THE AIR. SOMEONE TAKING A
SHOWER WOULD BREATHE THEM IN AND THEY WOULD BE EXPOSED THROUGH INHALATION IN
THAT MATTER. SO WE ADDED IN ADDITION TO ALL THOSE OTHERS, THE
VOLATILIZATION OF CONTAMINANTS WHILE SHOWERING. FOR THE CHILD RESIDENT,
THESE PATHWAYS ARE EXACTLY THE SAME. THE ONLY REASON I HAVE THIS SLIDE HERE
IS TO EXPLAIN A LITTLE BIT OF THE DIFFERENCE OF HOW WE LOOK AT CHILD
EXPOSURE VERSUS ADULT EXPOSURE. THESE ARE THE SAME EXPOSURE SCENARIOS, THE
SAME EXPOSURE PATHWAYS, BUT FOR ADULTS AND CHILDREN WE USE DIFFERENT
EXPOSURE FREQUENCIES, WE USE - - - IN OTHER WORDS, THEY'RE EXPOSED AT A
DIFFERENT RATE. THEY'RE EXPOSED FOR A DIFFERENT LENGTH OF TIME. WE
EXTRAPOLATE THE EXPOSURE ONLY OVER A CERTAIN FEW YEARS OF CHILDHOOD AS
OPPOSED TO AN ENTIRE LIFETIME, AND THEN ADD THAT ONTO THE ADULT EXPOSURE.
AND PROBABLY THE MOST IMPORTANT THING IS THAT WE ALSO LOOK AT THE BODY
WEIGHT OF A CHILD AS OPPOSED TO AN ADULT. THE SEVERITY OF EXPOSURE IS
DEFENDENT TO SOME EXTENT ON BODY WEIGHT. SOMEONE WHO IS HEAVIER, HAS A
GREATER MASS LIKE MYSELF, CAN BE EXPOSED TO A GREATER LEVEL OF TOXIC
CONTAMINANTS AND NOT EXPERIENCE ANY ADVERSE EFFECTS. A CHILD WHO IS LIGHTER
OR A LIGHTER PERSON CAN ONLY EXPERIENCE PROPORTIONALLY LIGHTER OR
PROPORTIONALLY LESS EXPOSURE FOR THE SAME EFFECT. SO

FOR CHILDREN, WE LOOK AT THAT LOWER BODY WEIGHT IN EVALUATING THE CONTAMINANT EFFECTS. THIS IS A LIST OF THE CONTAMINANTS THAT WERE FOUND AT THE SITE. AND THERE'S A BIG LAUNDRY LIST OF THEM. THE IMPORTANT THING IS NOT SO MUCH THE NUMBERS BECAUSE THE NUMBERS ARE ALL OVER THE PLACE. THE IMPORTANT THING IS TO NOTE THAT WE LOOKED AT A LARGE NUMBER OF CONTAMINANTS, ESSENTIALLY ALL THE CONTAMINANTS THAT WERE FOUND ABOVE BACKGROUND LEVELS OUT THERE. AND JUST FROM A QUALITATIVE SENSE, I'LL SAY THAT FOR THE MOST PART, THESE LEVELS OF CONTAMINATION ARE NOT PARTICULARLY HIGH OR THAT - - IN OTHER WORDS, THEY'RE NOT SIGNIFICANT IN TERMS OF RISK. AS SANDY HAS ALREADY MENTIONED, THE ONLY ONES THAT ARE SIGNIFICANT IN TERMS OF RISK ARE SOME OF THE GROUNDWATER NUMBERS FOR JUST A FEW OF THE CONTAMINANTS, AND I'LL GO INTO THAT IN A LITTLE MORE DETAIL IN A MINUTE. BUT FOR MOST OF THE CONTAMINANTS AND FOR MOST OF THE MEDIA, SURFACE SOIL, SURFACE WATER, AND SEDIMENTS, THE CONTAMINANT LEVELS ARE NOT SIGNIFICANT IN TERMS OF RISK. WHENEVER WE LOOK AT A BASELINE RISK ASSESSMENT, WE HAVE TO LOOK AT THE TOXICITY OF THE CONTAMINANTS INVOLVED. DIFFERENT CONTAMINANTS HAVE DIFFERENT TOXIC EFFECTS. HOW TOXIC ARE THE CONTAMINANTS THAT WE FOUND THERE AND IN WHAT WAY ARE THEY TOXIC? WE GENERALLY LOOK AT TOXINS AND SPLIT THEM UP INTO TWO CATEGORIES: CARCINOGENS

VERSUS NON-CARCINOGENS. CARCINOGENS ARE CONTAMINANTS WHICH ARE KNOWN TO CAUSE OR ARE SUSPECTED OF CAUSING THE DEVELOPMENT OF CANCER. MANY CONTAMINANTS INCLUDING SOME OF THE ONES FOUND HERE ARE NOT CONSIDERED TO BE CARCINOGENIC, BUT HAVE OTHER ADVERSE HEALTH IMPACTS; FOR INSTANCE, TOXIC EFFECTS ALL SPECIFIC ORGANS SUCH AS THE KIDNEYS OR THE LIVER. THERE ARE SOME CONTAMINANTS WHICH HAVE BOTH CARCINOGENIC AND NON-CARCINOGENIC EFFECTS. WE TRY TO CONTROL EXPOSURE TO THOSE BASED ON WHICH OF THOSE TWO IS THE MOST SEVERE OR THE MOST LIKELY. FOR NON-CARCINOGENS, WE DEAL WITH THE EXPOSURE

TO CARCINOGENS AND NON-CARCINOGENS DIFFERENTLY. FOR
NON-CARCINOGENS, IT'S
ASSUMED THAT AT CERTAIN LOW LEVELS OF EXPOSURE, THERE ARE NO
ADVERSE
 IMPACTS. IN OTHER WORDS, YOU CAN BE EXPOSED TO A CERTAIN AMOUNT O
A
NON-CARCINOGEN UP TO A CERTAIN THRESHOLD LEVEL AND BELOW THAT
THERE ARE NO
IMPACTS. YOUR BODY CAN HANDLE THAT EXPOSURE. ABOVE THAT
THRESHOLD LEVEL,
THEN ADVERSE IMPACTS RESULT. AT SUPERFUND SITES, WE'RE REQUIRED TO
REDUCE
NON-CARCINOGEN RISK TO A LEVEL SUCH THAT THE HAZARD INDEX RESULTING
FROM
EXPOSURE TO THOSE CONTAMINANTS IS LESS THAN ONE. SOME CONFUSING
TERMS
THERE, BUT THE HAZARD INDEX IS DEFINED AS THE RATIO OF THE LEVEL OF
ACTUAL
EXPOSURE COMPARED TO THE SAFE LEVEL OF INTAKE FOR THAT GIVEN
CONTAMINANT.
IN OTHER WORDS, IF YOU JUST PUT THE

EXPOSURE LEVEL DIVIDED BY THE SAFE LEVEL, IF THAT'S GREATER THAN ONE,
OBVIOUSLY YOU'RE OVER THE SAFE LEVEL OF EXPOSURE AND THAT'S A
PROBLEM. THIS
SAFE INTAKE LEVEL IS KNOWN AS THE REFERENCE DOSE, AND THAT
REFERENCE DOSE IS
DEPENDENT LIKE THINGS LIKE BODY WEIGHT, IT'S DEPENDENT ON AGE. WHEN
WE DO A
RISK ASSESSMENT, WE USE THE MOST - - - ESSENTIALLY A WORSE CASE
EVALUATION
OF REFERENCE. IN OTHER WORDS, WE USE THE MOST STRINGENT OF THE
VARIOUS
REFERENCE DOSES THAT MIGHT EXIST FOR A GIVEN CONTAMINANT.
CARCINOGENS ARE
DIFFERENT. WHEN WE DO TOXICITY ASSESSMENT FOR CARCINOGENS, WE
ASSUME THAT
ANY CONTAMINATION TO A CARCINOGEN, NO MATTER HOW SMALL, RESULTS IN
A
PROPORTIONAL LEVEL OF RISK. IN OTHER WORDS, THERE IS NO ZERO RISK
LEVEL OF
EXPOSURE AS THERE ARE FOR NON-CARCINOGENS. AT SUPERFUND SITES,
WE'RE
REQUIRED TO REDUCE THE RISK ASSOCIATED WITH EXPOSURE TO
CARCINOGENS TO LESS
THAN ONE TIMES TEN TO THE MINUS FOUR. IN OTHER WORDS, IN TERMS OF
ODDS, ONE
IN TEN THOUSAND. FOR THE RUTLEDGE SITE THIS MEANS THAT UNDER EVEN
THE MOST
WORSE CASE AND STRINGENT EXPOSURE SCENARIOS WHICH INCLUDES THE
FUTURE

EXPOSURE SCENARIO OF PEOPLE LIVING ON THE SITE FOR THEIR ENTIRE LIVES, THAT
MEANS THOSE RESIDENTS SHOULD NOT HAVE A GREATER THAN ONE IN TEN THOUSAND
CHANCES OF CONTRACTING CANCER DUE TO EXPOSURE TO SITE CONTAMINANTS. THAT'S
AN IMPORTANT

POINT, EXPOSURE TO SITE CONTAMINANTS. THIS ONE IN TEN THOUSAND IS THE
EXCESS RISK ASSOCIATED WITH THE SITE, THE RISK ABOVE AND BEYOND THE RISK
THAT WE ALL FACE LIVING IN A MODERN ENVIRONMENT OF CONTRACTING CANCER. THE
RISK IS FAIRLY HIGH AS WE ALL KNOW. A VERY MANY PEOPLE CONTRACT CANCER AND
DIE FROM CANCER. AND IT'S NOT CLEARLY UNDERSTOOD WHAT ALL THE CAUSES ARE OR
WHAT ALL THE REASONS WHY PEOPLE CONTRACT CANCER. BUT WHAT WE TRY TO DO IN
CONTROLLING CARCINOGENIC RISK FROM A SUPERFUND SITE IS MAKE SURE THAT THE
ADDITIONAL RISK THAT ANYONE EXPERIENCES AS A RESULT OF SITE CONTAMINATION IS
ONE IN TEN THOUSAND. ACTUALLY, YOUR RISK OF CONTRACTING CANCER IF YOU LIVED
TO A RIPE OLD AGE IS PRETTY MUCH ONE IN FOUR OR ONE IN THREE. SO THE EXCESS
RISK THAT WE TRY TO CONTROL SITE EXPOSURE TO IS MUCH, MUCH LESS THAN THE
ENVIRONMENTAL RISK THAT WE ALL EXPERIENCE FROM LIVING IN A MODERN WORLD. SO
WE'RE NOT SAYING THAT BY CONTROLLING THE RUTLEDGE PROPERTY EXPOSURE THAT
WE'RE GOING TO REDUCE EVERYBODY'S INDIVIDUAL RISK OF CANCER TO ONE IN TEN
THOUSAND; WE'RE JUST GOING TO REDUCE THE RISK ASSOCIATED WITH THIS SITE TO
ONE IN TEN THOUSAND OR LESS. WITH THAT IN MIND, I'M GOING TO JUMP RIGHT TO
THE RESULTS OF THE RISK ASSESSMENT. HERE'S A BREAKDOWN OF THE SITE RISKS,
THE FOUR EXPOSURE SCENARIOS, THE HAZARD INDEX, WHICH IS

NON-CARCINOGENIC RISK, AND CARCINOGENIC RISK. FOR THE ON SITE WORKE AND
THE SITE VISITOR YOU CAN SEE THAT THE HAZARD INDEX IS MUCH, MUCH LESS THAN
ONE AND THAT THE CARCINOGENIC RISK IS VERY LOW. NOW, CONVERTING

THOSE
NUMBERS TO ODDS, THIS IS ABOUT ONE IN A HALF A MILLION AND THIS IS
ABOUT ONE
IN FIVE MILLION. FOR THE FUTURE EXPOSURE SCENARIOS FOR THE ADULT
RESIDENT
AND THE CHILD RESIDENT, THE HAZARD INDEX IS MUCH GREATER THAN ONE
WHICH
MEANS THERE IS AN UNACCEPTABLE LEVEL OF RISK, AND THE CARCINOGENIC
RISK IS
MUCH GREATER THAN ONE TIMES TEN TO THE MINUS FOUR WHICH AGAIN
MEANS THERE IS
AN UNACCEPTABLE CARCINOGENIC RISK. RATHER THAN COMPARED TO THE
ONE IN TEN
THOUSAND, THIS IS ABOUT ONE IN SEVENTY AND THIS IS ABOUT ONE IN A
HUNDRED.
SO ONCE WE HAVE DETERMINED THAT THERE IS AN UNACCEPTABLE LEVEL OF
RISK
ASSOCIATED WITH THE SITE, WE TRIED TO LOOK AT WHERE IS THAT RISK
COMING
FROM. AND REMEMBER FROM THAT PREVIOUS SLIDE THE CURRENT RISK
LEVELS ARE
ACCEPTABLE; IT'S ONLY THE FUTURE EXPOSURE SCENARIOS, THE IDEA THAT
SOMEONE
WOULD COME THERE, BUILD A HOUSE ON THE SITE, SINK A WELL INTO THE
CONTAMINATED GROUNDWATER, AND USE THAT AS A POTABLE WATER SUPPLY
FOR
DRINKING, COOKING, BATHING. BUT EVEN UNDER THOSE EXPOSURE
SCENARIOS, WE
LOOK AT WHERE THE RISK IS COMING FROM. AND AS SANDY HAS ALREADY
MENTIONED,
IT'S ALL COMING FROM GROUNDWATER PATHWAYS,

DRINKING, AND SHOWERING. THE HAZARD INDEX ASSOCIATED WITH THAT
PATHWAY IS
400. THE RISK IS ABOUT ONE IN SEVENTY AGAIN. ALL THE OTHER PATHWAYS,
THE
CONTACT WITH SOIL, THE ACCIDENTAL INGESTION OF SOIL, THE PLAYING IN THE
CREEKS, ALL THAT ADDS UP TO A HAZARD INDEX OF .32; AGAIN MUCH LESS
THAN ONE,
AND A CARCINOGENIC RISK OF ABOUT THREE TIMES TEN TO THE MINUS FIVE
WHICH IS
ABOUT ONE IN THIRTY-THREE THOUSAND. SO IF WE COULD CONTROL THE
GROUNDWATER
PATHWAY AND EXPOSURE TO CONTAMINATED GROUNDWATER, WE CAN
ESSENTIALLY
ELIMINATE ALL OF THE UNACCEPTABLE RISK ASSOCIATED WITH THIS SITE STILL
KEEPING IN MIND THAT THAT UNACCEPTABLE RISK IS STILL BASED ONLY ON
FUTURE
EXPOSURE SCENARIOS, EXPOSURE SCENARIOS WHICH DON'T EXIST NOW. THAT
WAS FOR
THE ADULT. THIS IS THE SAME THING FOR THE CHILD. IT'S THE SAME STORY,

IT'S
JUST THAT THE RISK NUMBERS ARE A LITTLE HIGHER. THE HAZARD INDEX 948
RATHER
THAN 400 JUST REFLECTS AGAIN THE SMALLER BODY WEIGHT OF THE CHILD,
THE
GREATER FREQUENCY THAT A CHILD MIGHT PLAY IN A CREEK AS OPPOSED TO
AN ADULT.
HOPEFULLY, MOST ADULTS WOULDN'T GO OUT AND PLAY IN THE CREEK EVEN IF
THEY
KNEW IT WAS - - - WHETHER THEY KNEW IT WAS CONTAMINATED OR NOT. ALL
THE
OTHER PATHWAYS - - - WELL, FOR THE CHILD RESIDENT, THERE'S STILL SOME
UNACCEPTABLE RISK ASSOCIATED WITH SOME OF THE OTHER PATHWAYS, BUT
THIS AGAIN
IS A FUTURE

EXPOSURE SCENARIO AND IS NOT OCCURRING NOW. AND THE CARCINOGENIC
RISK IS
VERY LOW AGAIN, ABOUT ONE IN TWENTY-THREE THOUSAND. AND THEN THE
FINAL
QUESTION ONCE WE IDENTIFY THAT THERE IS SOME RISK AT THE SITE, WHAT
CONTAMINANTS ARE CAUSING THE RISK. REMEMBER THAT BIG LAUNDRY LIST
OF
CONTAMINANTS THAT WE HAD? I DON'T KNOW EXACTLY HOW MANY, 25 OR 30,
WHAT
CONTAMINANTS ARE CONTRIBUTING TO THE EXCESS RISK AT THE SITE? FOR
THE ADULT
RESIDENT, 99.8 PERCENT OF THE NON-CARCINOGENIC RISK COMES FROM THREE
CONTAMINANTS IN THE GROUNDWATER: MANGANESE, TRICHLOROETHENE - -
EXCUSE
ME, THREE CONTAMINANTS, AND 1,2 DICHLOROETHENE. ONE HUNDRED OF THE
CARCINOGENIC RISK COMES FROM TWO CONTAMINANTS: TRICHLOROETHENE,
WHICH IS
ONE OF THE SAME FOR THE NON-CARCINOGENIC RISK, AND VINYL CHLORIDE.
FOR THE
CHILD RESIDENTS, THE SAME CONTAMINANTS CONTRIBUTE ALMOST EXACTLY
THE SAME
 LEVELS OF RISK. I MIGHT POINT OUT THAT 1,2 DICHLOROETHENE AND VINY
CHLORIDE ARE LIKELY TO BE BREAKDOWN OR DEGRADATION PRODUCTS OF
THE
TRICHLOROETHENE. SO PROBABLY THERE'S A TRICHLOROETHENE PROBLEM
THERE OR A
DISPOSAL THERE AT ONE TIME. OVER THE YEARS, NATURAL DEGRADATION
PRODUCTS
TEND TO BREAK THAT DOWN INTO LESS COMPLEX MOLECULES, AND THOSE
DEGRADATION
PRODUCTS TEND TO BE 1,2 DICHLOROETHENE AND VINYL CHLORIDE. SO YOU'RE
SEEING
NOT ONLY THE ORIGINAL SOURCE

OF THE PROBLEM IN THE TRICHLOROETHENE, BUT ALSO IN THE BREAKDOWN PRODUCTS OF THAT OVER TIME. SO FINALLY, CONCLUSIONS ASSOCIATED WITH THE RUTLEDGE BASELINE RISK ASSESSMENT, THERE IS NO UNACCEPTABLE RISK UNDER CURRENT EXPOSURE CONDITIONS FOR THE SITE VISITOR OR THE ON SITE WORKER. ALL THE UNACCEPTABLE RISK ASSOCIATED IS ASSOCIATED WITH POTENTIAL FUTURE EXPOSURE SCENARIOS. IN OTHER WORDS, PEOPLE LIVING ON THE SITE, AND EVEN THOSE RISKS ARE ASSOCIATED ALMOST EXCLUSIVELY WITH EXPOSURE TO CONTAMINATED DRINKING WATER, CONTAMINATED GROUNDWATER. AND THE RISK LEVELS ARE PRIMARILY ASSOCIATED WITH EXPOSURE TO MANGANESE, TRICHLOROETHENE, VINYL CHLORIDE, AND 1,2 DICHLOROETHENE. SO I'LL LET SANDY GO BACK OVER OUR PROPOSED PLAN FOR THE SITE, AND I'LL BE AROUND FOR QUESTIONS REGARDING THE RISK ASSESSMENT LATER ON. THANK YOU.

SANDY MYERS: THANK YOU, BERNIE. AT THIS POINT, I'D LIKE TO BRIEFLY DISCUSS WHAT WE DID AT THE REMEDIAL INVESTIGATION. HOW DID WE GO OUT AND STUDY THE SITE, HOW DID WE COME UP WITH WHICH PATHWAYS WE THINK CREATE THE MOST RISK. ESSENTIALLY, WE TOOK SEVEN SURFACE WATER SAMPLES, SEVEN SEDIMENT SAMPLES, A TOTAL OF SIXTY-FIVE SOIL SAMPLES, AND FORTY-ONE GROUNDWATER SAMPLES. I'M GOING TO THROW UP A FEW CHARTS HERE TO SHOW YOU WHERE THESE SAMPLES WERE TAKEN. IT'S A LITTLE DIFFICULT TO

SEE; I APOLOGIZE. BUT THIS IS THE SITE MAP, AND THESE ARE THE LOCATIONS OF THE SURFACE WATER AND SEDIMENT SAMPLES RIGHT HERE, HERE, THERE, THERE, AND HERE. THOSE ARE THE SEVEN SPOTS. FOR THE 65 SOIL SAMPLES I'M NOT GOING TO BE ABLE TO POINT EVERY ONE OUT TO YOU, BUT THESE DOTS INDICATE WHERE WE TOOK SURFACE SOIL SAMPLES. AS YOU CAN SEE, THEY'RE SCATTERED ALL OVER THE SITE.
AND THESE ROUND DOTS INDICATE WHERE WE TOOK SUBSURFACE SOIL SAMPLES. THE

POINT OF THESE FIGURES IS SIMPLY TO SHOW YOU THAT WE SPREAD THESE SAMPLES
OUT ALL OVER THE SITE WHERE WE FEEL THE WASTE DISPOSAL PRACTICES OCCURRED,
AND WE FEEL LIKE WE SAMPLED THESE MEDIA PRETTY WELL. FOR THE GROUNDWATER,
WE SAMPLED IN THESE LOCATIONS. AND AS YOU CAN SEE, YOU HAVE A SHALLOW WELL
AND A DEEP WELL OR A ROCK WELL SO YOU'VE GOT TWO WELLS AT EACH ONE OF THESE
LOCATIONS. WHEN WE SAMPLED THE GROUNDWATER, WE CAME UP WITH LIKE BERNIE
SAID, A LAUNDRY LIST OF CONTAMINANTS. AND YOU RUN THOSE NUMBERS THROUGH THE
RISK ASSESSMENT, AND YOU DISCOVER WHERE THE PROBLEM IS. AND IN DOING SO,
YOU END UP WITH AN AREA OF CONTAMINATED GROUNDWATER CALLED THE PLUME. THIS
FIGURE HERE INDICATES THE GROUNDWATER CONTAMINANT PLUME IN RELATION TO THE
SITE BOUNDARY. AS YOU CAN SEE, THE CONTAMINATED GROUNDWATER PLUME IS
BASICALLY WITHIN THE SITE BOUNDARY. THIS PLUME IS A COMBINATION OF ALL FOUR

CONTAMINANTS THAT WE'RE LOOKING AT: THE TRICHLOROETHENE, THE 1,2 DICHLOROETHENE, MANGANESE, AND VINYL CHLORIDE. ALL THOS CONTAMINANTS ADDED
TOGETHER GIVE US THIS ONE PLUME. SO THIS TELLS US WHERE WE THINK THE PLUME
IS. WE FEEL VERY CONFIDENT THAT WE'VE DEFINED THE PLUME IN THIS AREA. AND
FROM THIS POINT, WE HAVE AN IDEA OF WHAT WE'RE DEALING WITH. WE THEN
EXAMINED THE CONTAMINANTS THAT WE'RE TALKING ABOUT IN PARTICULAR. THIS
CHART HERE SHOWS THE THREE VOLATILE ORGANICS AND THE ONE INORGANIC,
MANGANESE. IT ALSO SHOWS THE HIGHEST LEVEL THAT WAS DETECTED ON SITE, AND
IT SHOWS THE REMEDIATION LEVELS THAT WE'RE GOING TO CLEAN THIS UP TO. NOW,
THESE THREE VOLATILE ORGANICS, THE CLEANUP LEVEL IS SIMPLE. IT'S WHAT'S
CALLED THE M.C.L. OR THE MAXIMUM CONTAMINANT LEVEL. AND FOR THOSE OF YOU
THAT RECEIVED A PROPOSED PLAN, IN THE BACK IT GIVES A DEFINITION OF MAXIMUM
CONTAMINANT LEVEL. BUT SIMPLY, IT'S A PERMISSIBLE LEVEL THAT THE AGENCY
ACCEPTS. THAT'S ESSENTIALLY THE BOTTOM LINE. THESE LEVELS ARE WHAT WE'RE
GOING TO CLEAN UP TO FOR THESE THREE VOLATILIZE. NOW FOR MANGANESE,

WE'RE
GOING TO CLEAN UP ABOUT 200. THE UNITS ON THIS ARE MICROGRAMS PER
LITER.
THERE IS NO M.C.L. FOR MANGANESE. HOW WE'VE COME UP WITH THIS NUMBER
IS
IT'S APPROXIMATELY THE BACKGROUND CONCENTRATION OF MANGANESE.
YOU TAKE A
SAMPLE FROM OFF

SITE AND YOU COMPARE THAT TO WHAT YOU'VE GOT ON SITE. WE HAD HIGH
LEVELS OF
MANGANESE ON SITE AT ABOUT 3,600. WE NEED TO CLEAN UP TO
BACKGROUND, WHICH
IS ESSENTIALLY 200 MICROGRAMS PER LITER. SO THESE - - -

TONY JANNETTA: CAN WE ASK QUESTIONS AS YOU GO ALONG OR DO YOU
WANT TO
WAIT UNTIL A CERTAIN TIME.

SANDY MYERS: NO, ABSOLUTELY. YOU CAN ASK QUESTIONS NOW.

TONY JANNETTA: FROM THE BEGINNING THAT AUGHT TO BE MADE KNOWN
BECAUSE
WE HAD QUESTIONS FROM THE PREVIOUS SPEAKER. AT THE END, HALF OF US
WILL
FORGET HALF OF THE PROGRAM. I DO HAVE SOME QUESTIONS ON THE AREA OF
THE
CONTAMINATED SOURCE THAT WAS TESTED. MY NAME IS TONY JANNETTA,
AND THE
QUESTIONS I HAVE WITH RESPECT TO THE AREA THAT WAS TESTED AND THE
THREE,
FOUR, OR FIVE COMPOUNDS THAT WERE DETECTED TO HAVE CARCINOGENS IN
THE WATER,
YOU'RE SAYING THE SOIL DOES NOT - - - WE'RE NOT WORRIED ABOUT THE SOIL
AS OF
NOW. WE'RE WORRIED ABOUT THE WATER, UNDERGROUND WATER STREAMS.
WAS THE
NEIGHBORHOOD ADEQUATELY TESTED IN ADDITION TO THE SITE AREA AS TO
HOW FAR
THE PLUME WAS ON THE STRATOSPHERE OF THE WATER?

SANDY MYERS: WE FEEL LIKE - - - I WANT TO SHOW YOU A MAP THAT HAS
THE
WELLS. WHAT WE'VE DONE AS YOU CAN SEE UP HERE IN THE CORNER, THIS
PRIVATE
WELL WHICH IS

APPROXIMATELY 500 FEET IN THAT DIRECTION, WE SAMPLED THAT WELL. WE

SAMPLED
THIS PRIVATE WELL HERE. WE SAMPLED A PRIVATE WELL THAT'S ON SITE; IT'S
KIND
OF HARD TO SEE. AND WE SAMPLED THIS OTHER PRIVATE WELL HERE.

JERRY COLLINS: ARE THERE ANY OTHER PROPERTIES IN THAT VICINITY IN
THE
PERIMETER WHERE THE PLUME IS THAT ARE ON WELL WATER OR CITY WATER?
MY NAME
IS JERRY COLLINS. MY QUESTION IS YOU'VE CHECKED THE WELLS AND THE
OUTER
LOCATIONS MORE OR LESS IT SEEMS LIKE. THE BIGGEST QUESTION, ARE THERE
WELLS
IN THE VICINITY JUST OUTSIDE THAT PLUME OR IS EVERYONE THERE IN THAT
AREA,
 ARE THEY ON CITY WATER AND SEWAGE

SANDY MYERS: THESE FOLKS RIGHT HERE ARE ON CITY WATER. WE'VE BEEN
INDICATED THEY'RE ON CITY WATER. THIS ARROW HERE, BY THE WAY,
INDICATES THE
DIRECTION OF GROUNDWATER FLOW. WHAT THAT'S TELLING YOU IS THAT'S - -
THIS
IS THE DIRECTION THAT THE CONTAMINANTS ARE MOVING ESSENTIALLY. WE
SAMPLED
THESE WELLS OUT HERE, AND WE CAME UP WITH VERY LOW HITS OR VERY LOW
CONCENTRATIONS AT THIS ONE WELL. THE LEVELS OF THE CONTAMINANT
THAT WE
FOUND HERE ARE ALREADY BELOW THE FEDERAL M.C.L. OF FIVE MICROGRAMS
PER
LITER. SO THERE WAS A TRACE HIT THERE, YES, BUT THE LEVEL THAT WE
FOUND
THERE IS SO LOW THAT TO THIS POINT IT'S NOT FIGURED IN INTO THE SCOPE OF
THIS GROUNDWATER PLUME.

TONY JANNETTA: THAT'S MOSTLY CONTAINED TO THE SITE? MOSTLY THE
PROBLEM IS CONTAINED TO THE SITE?

SANDY MYERS: YES, SIR. AT THIS POINT WE FEEL THAT THE PLUME IS
ESSENTIALLY THE SHADED AREA HERE. NOW, THE VERY FIRST SLIDE THAT I
SHOWED
YOU ALL TONIGHT, THIS WAS THE FIRST SLIDE, THIS SHOWS OTHER WELLS IN
THE
AREA. NOW, WE WENT IN AND ASKED THESE RESIDENTS IF THEY WERE USING
THESE
WELLS, AND WE TOOK WHAT'S CALLED A WELL SURVEY. WE DID NOT SAMPLE
THESE
WELLS BECAUSE WE FELT THAT THEY'RE APPROXIMATELY, IF YOU CAN SEE THE
SCALE,
THEY'RE ANYWHERE FROM A QUARTER TO A HALF A MILE AWAY. SO GIVEN A
FEW
CONSIDERATIONS LIKE THE GROUNDWATER HYDROLOGY AND HOW THE SITE - -

THE
SITE CONCEPTUAL MODEL, WHAT WE DID WAS SAMPLE THESE WELLS INSTEAD.
THIS
WELL HERE IS SLIGHTLY DOWNGRADE FROM THE SITE, AND IT'S ROUGHLY 500
FEET
FROM THE SITE SO WE CHOSE TO SAMPLE THAT WELL.

TONY JANNETTA: THE DEPTH WHEN YOU FIRST TRACED CONTAMINANTS IN
THE
WELL WOULD BE WHAT FROM THE MINIMUM TO THE DEEPEST POINT?

SANDY MYERS: THAT'S A GOOD QUESTION. THE DEPTH OF THESE WELLS,
OBVIOUSLY WE'VE GOT SHALLOW AND ROCK WELLS AND ACROSS THE SITE
THOSE DEPTHS
ARE GOING TO VARY. I BELIEVE OUR DEEPEST WELL IS ABOUT 58 FEET OR 56
FEET,
SOMEWHERE IN THAT NEIGHBORHOOD. AND OUR SHALLOW WELL

MIGHT BE 25 FEET. BUT AGAIN, THE DEPTH OF THESE WELLS VARY, BUT THAT
GIVES
YOU A BROAD RANGE.

TONY JANNETTA: DOES THAT CORRELATE WITH THE HOMEOWNERS' WELLS
AND HOW
DEEP THEY WERE?

SANDY MYERS: THAT'S AN EXCELLENT QUESTION AND THAT IS SOMETHING
THAT
WRITTEN IN THIS PROPOSED PLAN WE ARE GOING TO INVESTIGATE THAT AT THE
REMEDIAL DESIGN PHASE. WHAT WE'RE GOING TO DO IS GO BACK IN
PARTICULAR AND
LOOK AT THESE PRIVATE WELLS. IN PARTICULAR PRIVATE WELL 4, WE'RE
GOING TO
GO BACK AND CHECK THE DEPTH OF THAT WELL. AND IF THAT WELL IS
SCREENED OR
IF IT'S MUCH DEEPER THAN THE WELLS THAT WE HAVE ON SITE, LET'S SAY IT'S
AT
150 FEET OR 100 FEET, THEN WE'RE GOING TO HAVE TO GO BACK AND PUT A
DEEPER
WELL TO MAKE SURE THAT THE CONTAMINANTS AREN'T GOING UNDERNEATH
THIS.

TONY JANNETTA: WHY HASN'T THIS BEEN DONE TO BEGIN WITH? SEEMS LIKE
IT'S ASS-BACKWARDS. I MEAN WE'RE SPENDING EPA MONEY; WE'RE SPENDIN
TAXPAYERS' MONEY. LOOKS LIKE TO ME TO GET AN ANALYSIS AND YOU'RE
DIGGING
WELLS, YOU WOULD SURVEY THE WHOLE SITE AND IF THERE ARE DEEPER
WELLS, YOU
WOULD GO DEEPER IF YOU FOUND TRACES AT ALL IN THE RESIDENTIAL WELLS.
SO
YOU'RE REALLY REDUPLICATING WHAT YOU'RE GOING TO HAVE TO DO IF THAT

HAPPENS.
AND YOU'RE SAYING GROUNDWATER IS THE ONLY CONTAMINATED SOURCE.
HOW ABOUT
THE CITY'S

INFRASTRUCTURE ON CHERRY ROAD, WATER AND SEWER. HAS ANYTHING
BEEN TESTED
ACROSS THE ROAD TO SEE IF THERE'S ANY CONTAMINANTS ON THE CITY SIDE
PERTAINING TO THE CITY'S INFRASTRUCTURE, PERTAINING TO WATER AND
SEWER?
THERE'S BEEN SITUATIONS WHERE YOU COULD HAVE CONTAMINANTS
INFILTRATING CITY
SYSTEMS IN THE GROUND. SO IF YOU'VE GOT A LOW WATER TABLE, WHICH IT
VARIES
FROM TIME TO TIME, YOU MAY HAVE A BREAK IN THE CITY SYSTEM WHERE
YOU'VE GOT
CONTAMINANTS FROM THE SITE GOING BACK IN THE CITY SYSTEM. SO HAS
THAT BEEN
LOOKED AT?

SANDY MYERS: I'D LIKE TO ADDRESS YOUR FIRST QUESTION FIRST. YOU SAID
THAT IT SOUNDS LIKE WE'RE GOING BACKWARDS HERE. WE'RE SAYING THAT
WE'RE
GOING TO COME BACK AND LOOK AT THIS WELL, WE MIGHT HAVE TO END UP
PUTTING
ANOTHER DEEP WELL. THAT IS TRUE, BUT TO THIS POINT IF WE DO GO BACK
AND DO
THAT, IT'S NOT GOING TO CHANGE OUR REMEDIAL ALTERNATIVE WHICH IS
ESSENTIALLY
GOING TO BE GROUNDWATER TREATMENT.

TONY JANNETTA: OKAY, QUESTION. GROUNDWATER TREATMENT. YOU'VE
ALREADY
- - - I WOULD ASSUME THAT YOU'VE ALREADY DONE A BASIC TREATMENT OF
THE
GROUNDWATER THAT EXISTS FROM SITE.

SANDY MYERS: NO, SIR. WE HAVE NOT.

TONY JANNETTA: YOU HAVE NOT DONE THAT YET?

SANDY MYERS: NO, SIR.

TONY JANNETTA: YOU DON'T KNOW WHAT CHEMICALS OR ANYTHING WILL
NEUTRALIZE OR BRING INTO COMPATIBILITY BEFORE YOU EVEN START
DUMPING IT IN
THE CITY SYSTEM OR WHATEVER SYSTEM, METHOD YOU PLAN TO USE. NO
METHOD HAS

BEEN USED WHEN YOU EXTRACTED THIS WATER OUT TO BRING IT DOWN TO AN ACCEPTABLE LEVEL FOR AN ACCEPTABLE DUMPING, WHEREVER THAT SITE MAY BE. HAS ANYTHING BEEN TRIED TO NEUTRALIZE WHAT'S IN THE WATER SYSTEM NOW?

SANDY MYERS: NO, SIR. WE'RE SIMPLY IN THE INVESTIGATION PHASE OF THE SUPERFUND PROCESS RIGHT NOW. WE'RE LOOKING AT DIFFERENT ALTERNATIVES THAT WE CAN USE TO REMEDIATE THE SITE. WE HAVE NOT EXTRACTED THE GROUNDWATER FROM THE SITE.

TONY JANNETTA: IS THERE TECHNOLOGY ON THOSE COMPOUNDS THAT YOU RELATED TO THAT WILL BRING IT TO AN ACCEPTABLE LEVEL BEFORE YOU EVEN CONSIDER DUMPING IT INTO THE CITY SYSTEM?

BERNIE HAYES: AS SANDY WAS SAYING, WE ARE RIGHT NOW JUST TRYING TO DEFINE THE EXTENT OF THE CONTAMINATION AND TO TRY AND TALK ABOUT TREATMENT ALTERNATIVES OR TECHNOLOGIES THAT MIGHT ADDRESS IT. WE HAVE A GOO IDEA OF WHAT'S IN THE GROUNDWATER. WE TESTED THE GROUNDWATER FOR HUNDREDS OF CONTAMINANTS AND FOUND THE ONES THAT WE HAVE DESCRIBED ALREADY. WE KNOW THAT THERE ARE TECHNOLOGIES THAT CAN DEAL WITH TAKING THOSE CONTAMINANTS OUT OF THAT GROUNDWATER SO THAT THE WATER IS REMEDIATED TO A POINT WHERE IT'S NOT A PROBLEM NO MATTER HOW YOU GET RID OF IT. BUT WE'RE SKIPPING WAY AHEAD HERE AS FAR AS THE PROPOSED PLAN GOES. OBVIOUSLY A LOT OF YOU HAVE ALREADY READ IT, BUT THE IDEA OF PUTTING AN END TO THE TREATMENT SYSTEM THAT ALREADY EXISTS AND THAT WILL BE EFFECTIVE FOR REMOVING THOSE CONTAMINANTS IS A VERY COST EFFECTIVE WAY OF DOING IT RATHER THAN BUILDING A WHOLE OTHER TREATMENT SYSTEM TO DEAL WITH IT SPECIFICALLY.

TONY JANNETTA: THE POINT ON THAT WOULD BE IF YOU'RE GOING TO TAKE RAW UNDERGROUND WATER, WE DON'T KNOW HOW LONG, HOW BIG THIS PLUME IS. DO WE KNOW THAT?

SANDY MYERS: IT'S AN ESTIMATION, LIKE I SAID BEFORE. YES.

TONY JANNETTA: YOU WOULD KNOW WHERE THE BEGINNING AND ENDING POINT
WOULD BE ONCE YOU START PUMPING?

BERNIE HAYES: THAT'S REALLY A VERY DIFFICULT THING TO DO. I MEAN
THERE'S NOT - - - IT'S VERY DIFFICULT TO ESTIMATE HOW LONG IT WILL TAKE TO
PUMP A GIVEN VOLUME OF CONTAMINATION OUT OF THE GROUND.

TONY JANNETTA: YOU'RE ASKING THE CITY OF ROCK HILL TO COME IN AND PUT
ADDITIONAL CHEMICALS IN THEIR WATER TO TREAT THIS UNDERGROUND
WATER WITH THE
BULK OF THE CITY'S WATER, WITH THE CITY'S WATER ADDITIONAL

CHEMICALS. I'M SAYING THAT THIS IS A CONSIDERATION ARE WE - - - WHERE WE
MAY BE GOING ON CONSIDERING THIS OPTION, I'M SAYING IT WOULD BE BETTER TO
TREAT IT BEFORE YOU DUMP IT INTO THE CITY MAIN, CITY SEWER ON SITE TO GET
SOME OUT OF THE WAY. THEN THE CITY CAN TAKE IT FROM THAT POINT IF THAT WAS
AN OPTION.

BERNIE HAYES: THAT'S EXACTLY THE KIND OF COMMENT WE LIKE TO HEAR.

TONY JANNETTA: YOU'RE PUTTING THE CITY AT RISK BY JUST RUNNING IT
THROUGH THE CITY SYSTEM BECAUSE IT'S PUTTING ADDITIONAL CHEMICALS IN THE
CITY'S WATER TREATMENT FILTER PLANT.

BERNIE HAYES: THAT'S A GOOD POINT, AND THOSE ARE EXACTLY THE KIND OF
COMMENTS THAT WE ARE HAVING THE MEETING TO HEAR BECAUSE JUST AS THE DOCUMENT
SAYS, THIS IS A PROPOSED PLAN. WE HAVE NOT MADE FINAL DECISION ABOUT WHAT
WE'RE GOING TO DO WITH THIS GROUNDWATER OR HOW WE'RE GOING TO REMEDIATE THE
SITE. SO THESE ARE EXACTLY THE KIND OF THINGS THAT WE NEED TO HEAR IS THE
PUBLIC'S REACTION OR THE PEOPLE'S REACTION TO THESE VARIOUS TREATMENT
OPTIONS AND THE PROBLEMS THAT THEY MAY FORESEE WITH IT. I THINK WE NEED TO
COME BACK TO THE QUESTION OF TALKING ABOUT THE TREATMENT OPTIONS. AND SANDY
I'M SURE WILL COVER THAT AS PART OF THE PRESENTATION. AND I KNOW IT'S
DIFFICULT TO REMEMBER

YOUR QUESTIONS AS THINGS GO ALONG AND IF THERE'S ONE THAT YOU DON'T THINK
YOU CAN HOLD ON TO UNTIL THE END, THEN CERTAINLY WE'LL TAKE IT. BUT LET'S
GO AHEAD AND GET THROUGH THE PRESENTATION AND MAYBE SOME OF THOSE QUESTIONS
WILL BE ANSWERED BY THE PRESENTATION ITSELF AND THAT WAY WE WON'T HAVE TO BE
HERE SO LONG. SO LET'S GET THIS ONE THEN - - -

JERRY COLLINS: MAY I ASK ONE QUESTION BEFORE WE GO INTO TALKING ABOUT
TREATMENT? YOU HAD MENTIONED THAT THE PROPERTY THAT WAS A QUARTER MILE OR
HALF MILE AWAY FROM THE SITE THAT YOU HAD ASKED WHETHER THEY WERE USING THE
WELLS OR NOT. YOU DID NOT STATE WHETHER OR NOT THEY WERE USING THE WELLS.

SANDY MYERS: THOSE PROPERTIES, THEY DID HAVE DRINKING WELLS.

JERRY COLLINS: WERE THEY USING THEM?

SANDY MYERS: THE MAJORITY OF THEM, YES. I'M NOT POSITIVE IF ALL OF THEM WERE, BUT I KNOW - - -

JERRY COLLINS: BUT YOU DID NOT TEST ANY OF THOSE WELLS?

SANDY MYERS: NO. WE DID NOT TEST THESE WELLS.

JERRY COLLINS: IT SOUNDS TO ME LIKE YOU'RE INCONCLUSIVE ON YOUR COLLECTION.

SANDY MYERS: WHAT WE DID INSTEAD WAS WE PLACED WELLS IN BETWEEN THE
SITE SOURCE AREA WHICH WE BELIEVE

IS RIGHT IN HERE IN THAT LOCATION. FOR INSTANCE, WE HAVE A MONITORING WELL
6 WHICH IS A SHALLOW AND A DEEP WELL WHICH IS DIRECTLY BETWEEN THAT AREA,
THE SOURCE AREA, AND THE RESIDENTIAL WELLS. THAT WELL IS CLEAN.

JERRY COLLINS: THERE IS NO CONTAMINATION AT THAT LEVEL?

SANDY MYERS: THERE IS NOT. SO THAT IS SORT OF AN INDICATION THAT THE
CONTAMINANT PLUME HAS NOT EXCEEDED THE SITE BOUNDARY ON THIS SIDE

OF THE
PROPERTY.

JERRY COLLINS: ALSO, FROM WHAT I'VE READ IN THE NEWSPAPER THAT THE FIRST UNION BANK PROPERTY WHEN IT WAS CONSTRUCTED, THEY HAD EXTRACTED I
THINK THREE FEET DEEP OF SOIL BEFORE THEY BUILT THE FOUNDATION. THE PROPERTY, THAT FIRST UNION BANK, IS NOT INCLUDED IN THAT PERIMETER THAT USED
TO BE PART OF THE ACTUAL PROPERTY OF THE CHEMICAL COMPANY. IS THAT CORRECT?
YOU HAVE A BOUNDARY GOING AROUND THE BANK. IT'S NOT INCLUDED IN THAT
PERIMETER, IS IT?

SANDY MYERS: THAT'S CORRECT.

JERRY COLLINS: WHY IS THAT NOT IN THERE, BUT THAT WAS PART OF THE ORIGINAL?

SANDY MYERS: I THINK THAT MARK MIGHT COULD HELP US MORE WITH THI QUESTION. BUT I THINK IT'S SIMPLY THE FACT THAT THE BANK OWNS THIS PROPERTY. AND JUST FOR A SITE BOUNDARY MAP, WE DID NOT INCLUDE THAT PART OF
THE

PROPERTY IN THIS BOUNDARY. HOWEVER, THE PLUME, AS YOU CAN SEE, DOES GO OVER
THAT PART OF THE SITE AND IT WILL BE REMEDIATED.

JERRY COLLINS: BUT AS FAR AS THE CONTAMINATED SOIL THAT WAS OWNED - -
- THE PROPERTY THAT WAS ORIGINALLY OWNED BY THE COMPANY, THE CHEMICAL
COMPANY, WAS THAT AREA WHERE THE BANK SITS WAS INCLUDED IN THAT BUT THAT'S
NOT SHOWN?

SANDY MYERS: THAT'S CORRECT.

JERRY COLLINS: ACTUALLY THE ENTIRE AREA THAT WAS PART OF THE CHEMICAL
COMPANY?

SANDY MYERS: YOU'RE CORRECT.

JERRY COLLINS: AND YOU ALSO HAVE NOT STATED ABOUT THAT FROM WHAT I
READ IN THE PAPER THAT I BELIEVE IT WAS THREE FEET OF SOIL WAS EXTRACTED IN
'84 OR '86, SOMETHING LIKE THAT, WAS BEFORE THEY BUILT THE FOUNDATION

TO THE
BANK, AND THAT'S WHEN THEY FOUND THAT THERE WAS CONTAMINATION
LEVELS.

SANDY MYERS: RIGHT. EARLY ON IN THE TALK I HAD MENTIONED THAT
THERE
WERE TWO REMOVALS THAT TOOK PLACE.

JERRY COLLINS: YOU STATED BEHIND THE BANK. YOU DIDN'T SAY ABOUT
THE
PROPERTY WHERE THE BANK IS LOCATED. THEY SAY IN THE PAPERS FROM
WHAT I'VE
READ THAT ACTUALLY THEY HAD REMOVED SOIL FROM THE PROPERTY WHERE
THE BANK
WAS BUILT ON THAT FOUNDATION AREA. AND YOU ALSO HAVEN'T

DONE ANY SOIL TESTS IN THE AREA PROBABLY BECAUSE IT'S PAVED, I GUESS.
ALL
THAT AREA IS PROBABLY PAVED MORE THAN LIKELY.

BERNIE HAYES: AGAIN, THAT'S SOMETHING, THAT'S EXACTLY THE KIND OF
THING THAT WE NEED TO HEAR IS INFORMATION THAT WE MAY NOT HAVE
BEEN FULLY
AWARE OF OR THINGS THAT WE NEED TO CHECK UP ON TO SEE IF THERE IS A
NEED TO
SAMPLE UNDER THE FILL THAT THE BANK WAS PLACED ON TO THE EXTENT
THAT SOIL
WAS REMOVED FROM UNDER THERE SO THAT'S SOMETHING WE WILL - - -

JERRY COLLINS: ALSO, WHY HASN'T IT BEEN BROUGHT UP AS AN OPTION TO
REMOVE THE SOIL IN THIS AREA BECAUSE WHEN YOU REMOVE THE WATER
FROM THIS
PLUME, YOU'RE GOING TO EVENTUALLY GET - - - THE SAME BUILD UP IN WATER
IS
JUST GOING TO BE A CONSTANT FILTRATION PROCESS. WHY NOT REMOVE THE
SOIL?
THAT'S WHERE THE PROBLEM IS. THE WATER IS THE RESULT OF IT. THE
PROBLEM IS
THE SOIL WHERE THE CHEMICALS AREA. WHY NOT REMOVE THAT?

BERNIE HAYES: A GOOD POINT. AND AGAIN, IT'S SOMETHING THAT I THINK
MAY BE COVERED AS PART OF THE FURTHER PRESENTATION SO LET'S GO
AHEAD AND GET
THAT OVER WITH, AND THEN WE'LL COME BACK AND TALK ABOUT SOME OF
THESE THINGS
BECAUSE THOSE ARE VERY GOOD POINTS. I MEAN THOSE ARE EXACTLY TH
KIND OF
THINGS WE'RE HERE TO TALK ABOUT AND WE WANT TO GET INPUT IN AS TO
WHAT FOLKS
THINK

ABOUT THE REMEDY OF THE PROPOSAL.

SANDY MYERS: VERY QUICKLY, THESE ARE THE VARIOUS ALTERNATIVES THAT WE LOOKED AT. ESSENTIALLY, WE HAVE TWO TYPES OF ALTERNATIVES. WE'VE GOT ALTERNATIVE 3A AND 3B WHICH ARE GROUNDWATER EXTRACTION AND TREATMENT ON SITE, AND 4A AND 4B WHICH ARE EXTRACTION WITH TREATMENT AT THE P.O.T.W., SENDING THE CONTAMINATED WATER TO THE P.O.T.W., THE DIFFERENCE BETWEEN EACH JUST BEING THE NUMBER OF EXTRACTION LEVELS. THESE ARE THE ALTERNATIVES THAT WE LOOKED AT AND EPA PROPOSED ALTERNATIVE 4B, WHICH IS GROUNDWATER EXTRACTION USING APPROXIMATELY TWO WELLS IN DIRECT DISCHARGE TO THE P.O.T.W. THE REASON THAT WE CHOSE THIS ALTERNATIVE IS WE'VE GOT SIX REASONS: NUMBER 1, IT PROTECTS HUMAN HEALTH AND THE ENVIRONMENT; NUMBER 2, IT MEETS APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS WHICH ARE SIMPLY TYPES OF RULES AND REGULATIONS. THEY MEET THOSE REGULATIONS. THIS ALTERNATIVE IS EFFECTIVE BOTH IN THE SHORT AND THE LONG TERM. IT REDUCES CONTAMINANT TOXICITY, MOBILITY, AND VOLUME. IT'S EASY TO IMPLEMENT, AND IT'S COST EFFECTIVE. NOW COMING BACK TO THIS CHART HERE, YOU SEE THE DIFFERENCE FROM TREATING IT ON SITE AND SENDING IT DOWN THE P.O.T.W. AS FAR AS THE COST GOES. IN CHOOSING THESE ALTERNATIVES, I FELT PERSONALLY THAT IF THE P.O.T.W. CAN ACCEPT THIS GROUNDWATER, THEN THERE WAS NO NEED TO BUILD A TREATMENT PLANT ON SITE TO TREAT THE WATER IF THEY WILL TREAT IT FOR US DOWN THE ROAD.

JERRY COLLINS: MAY I ASK A QUESTION WHILE WE'RE ON THAT POINT RIGHT THERE? FIRST OFF, I'M PRETTY SURE EVERYBODY IS AWARE OF THE FACT THAT THE WASTE TREATMENT FACILITY ON DAVE LYLE GOT TO A POINT WHERE THEY COULD NOT HANDLE THE CAPACITY OF THE WASTE. THEY HAD BEEN SHIPPING IT TO, I BELIEVE, I MAY NOT HAVE MY FACTS STRAIGHT, MAYBE LANCASTER OR CHESTER; AND THAT FACILITY CLOSED DOWN. AND THIS IS ALSO THE SAME PROBLEM WHERE, IT

WAS
NATIONAL NEWS, WHERE THEY WERE USING FECAL MATTER THAT CAME OUT
OF THE DAVE
LYLE TREATMENT FACILITY AND PUTTING IT ON - - - SPREADING IT ON
PASTURES AND
LETTING IT SIT STAGNANT FOR SO MANY YEARS BEFORE IT'S USABLE. WELL
NOW,
YOU'RE GOING TO DUMP ALL THIS CHEMICAL IN THE D.O.T. FACILITIES AND
WHO'S TO
SAY THAT MATTER IS NOT GOING TO BE SCOOPED UP AND THEN SPREAD ON
PASTURES
AGAIN, FIELDS AGAIN. AND THE WORSE PART ABOUT IT IS WHEN THEY
EXTRACTED
THIS WASTE AND SPREAD IT ON THE FIELDS, THEY DIDN'T FIND OUT UNTIL
LATER ON
THAT THERE WERE AIR POCKETS IN THE WASTE TREATMENT FACILITY AND THE
ACTUAL
WASTE, THE FECAL HAD NOT DECOMPOSED THOROUGHLY AND THERE WERE
HUMAN SANITARY
THINGS FOUND, BUT THEY ALSO FOUND RAW FECAL MATTER ON THE FIELDS.

SANDY MYERS: RIGHT. I AM NOT FAMILIAR WITH THAT

SITE AND THAT PROJECT.

JERRY COLLINS: ARE YOU NOT FAMILIAR WITH THAT HEADLINE NEWS STOR
THAT
WAS NATIONAL? ROCK HILL HIT NATIONAL NEWS FOR THAT.

SANDY MYERS: OFF THE TOP OF MY HEAD, NO; I'M SORRY I'M NOT.

JERRY COLLINS: NOBODY SAW THAT STORY?

SANDY MYERS: NO. I'M NOT SAYING NO ONE SAW THE STORY. I'M JUST
SAYING I'M NOT FAMILIAR WITH THAT STORY.

JERRY COLLINS: RIGHT, BUT THIS WAS NOT STUDIED THAT MAYBE THE FACT
THAT IF THEY'RE GOING TO PUMP THIS TO THE D.O.T. CENTER THAT - - -

SANDY MYERS: WE'RE TALKING ABOUT EXTRACTING THIS GROUNDWATER
AND
SENDING IT VIA THE SEWER LINE TO THE P.O.T.W. WHERE THEY TREAT WATER.

JERRY COLLINS: THIS IS AT DAVE LYLE. THIS IS THE FACILITY ON DAVE
LYLE IS WHERE IT WOULD GO THOUGH. THAT'S THE SAME FACILITY WHERE
THEY
SCOOPED THIS WASTE OUT AND IT WAS SPREAD ON PASTURES AS FERTILIZER.

BERNIE HAYES: THAT'S A VERY COMMON PRACTICE.

GLEN PELLETT: MY NAME IS GLEN PELLETT. THE MATERIAL THAT WAS

REMOVED
AND SENT TO SEVERAL FARMS IN CHESTER AND YORK COUNTY WAS ACTUALLY
MATERIAL
THAT WAS PLACED IN OLD LAGOONS PRE-1984 THAT HAD BASICALLY BEEN

ABANDONED IN PLACE. THAT'S NOT FROM THE CURRENT MANCHESTER PLANT.
THAT
SLUDGE IS TREATED TOTALLY SEPARATELY. SO WHAT YOU'RE SPEAKING TO IS
NOT THE
SLUDGE THAT'S GOING TO BE GENERATED FROM ANY OF THE WATER THAT
WOULD BE
DISCHARGED TO THE P.O.T.W. ANOTHER QUESTION I HAD, WE WERE TALKING
ABOUT
MAXIMUM CONCENTRATIONS OF 84,000 MICROGRAMS PER LITER. DO YOU HAVE
A GUESS
AS TO WHAT THE AVERAGE CONCENTRATION MIGHT BE? IT'S GOT TO BE
SIGNIFICANTLY
LOWER THAN THAT.

BERNIE HAYES: I'M SURE IT WOULD BE. AGAIN, IT'S DIFFICULT TO DO THAT
UNTIL WE DO SOME PUMP TESTS, UNTIL WE TRY TO DO SOME DETERMINATION
OF WHAT
THE AVERAGE INFLUENT MIGHT BE. I THINK JUST TO TRY AND WRAP ALL THIS
UP,
NORMAL SEWAGE TREATMENT PLANTS, P.O.T.W.'S, WHATEVER YOU CALL THEM,
ARE VERY
EFFECTIVE AT REMOVING CERTAIN TYPES OF CONTAMINANTS, PARTICULARLY
VOLATILE
ORGANICS, WHICH THREE OUT OF FOUR CONTAMINANTS WE HAVE HERE ARE
VOLATILE
ORGANICS. THEY TEND TO COME OUT IN WHAT'S CALLED THE ACTIVATED
SLUDGE WHERE
THEY BUBBLE A LOT OF OXYGEN AND A LOT OF AIR THROUGH THIS SEWAGE IN
ORDER TO
PROVIDE OXYGEN FOR THE BACTERIA THAT LIVE IN THERE AND THAT BREAK
DOWN THE
CONTAMINANTS THAT ARE NORMALLY IN THE SLUDGE. AT THE SAME TIME,
THAT
BUBBLING ACTION, ALL THAT AERATION THAT GOES ON IN THE ACTIVATED
SLUDGE HAS
THE BENEFICIAL EFFECT OF REMOVING VOLATILE

CONTAMINANTS. SO IT'S UNLIKELY THAT ANY OF THESE VOLATILES IN THEIR
CURRENT
FORM ARE GOING TO END UP IN THE SLUDGE OR IN THE WATER THAT'S GOING
OUT OF
THE PLANT. THE SECOND THING TO KEEP IN MIND IS THAT IN ORDER TO
CONTROL THE

MIGRATION OF THIS PLUME, AGAIN WE'RE GETTING AHEAD OF OURSELVES HERE, WE'RE PROBABLY NOT GOING TO HAVE TO PUMP A WHOLE LOT OF WATER. I MEAN THIS IS NOT WHAT YOU'D CALL A VERY PRODUCTIVE AQUIFER. IT'S NOT THE KIND OF THIN THAT IN ORDER TO CREATE DRAW-DOWN IN THE EXTRACTION WELLS YOU HAVE TO PUMP THOUSANDS AND THOUSANDS OF GALLONS OF WATER. SO THE AMOUNT OF FLOW THAT WILL BE GENERATED BY CREATING A CONTAINMENT OR REMEDIATION GROUNDWATER EXTRACTION SYSTEM FOR THIS PLUME WILL BE VERY LITTLE IN COMPARISON TO THE OVERALL FLOW THAT'S GOING INTO SUCH TREATMENT PLANT. SO WHETHER OR NOT THIS SYSTEM WHEN IT'S IN PLACE WHETHER IT'S RUNNING OR NOT RUNNING IT WILL BE VERY DIFFICULT FOR THE PLANT EVEN TO KNOW IT IN TERMS OF THE VOLUME THAT THEY'D BE RECEIVING. NOW, IF IN FACT THE PLANT HAS A CAPACITY PROBLEM, THAT'S SOMETHING WE NEED TO CHECK ON. AND I'M GLAD TO HEAR THOSE KINDS OF THINGS BROUGHT OUT SO THAT WE CAN GO BACK AND MAKE SURE THAT WE'RE NOT GETTING OURSELVES INTO SOME KIND OF PROBLEM. SO THESE ARE EXACTLY THE KIND OF THINGS WE WANT TO HEAR. IF THERE IS A COMPLIANCE PROBLEM WITH THIS PLANT WE NEED TO KNOW, WE NEED TO FIND OUT, ALTHOUGH I THINK THAT WE'VE ALREADY DETERMINED THAT IT'S IN COMPLIANCE. IF THERE WAS A SLUDGE PROBLEM, A SLUDGE DISPOSAL PROBLEM, THAT'S ANOTHER THING THAT WE NEED TO FIND OUT ABOUT. SO THESE ARE THE THINGS WE CAN GO BACK AND CHECK ON TO MAKE SURE THAT WE'RE NOT GETTING OURSELVES INTO A BIGGER PROBLEM THEN WE ALREADY HAVE BY IMPLEMENTING THIS PREFERRED DISPOSAL OPTION. DID YOU HAVE ANY MORE?

SANDY MYERS: ACTUALLY, THIS WAS OUR PREFERRED ALTERNATIVE. THIS WAS ESSENTIALLY THE END OF MY TALK.

BERNIE HAYES: OKAY. WELL, LET'S TAKE QUESTIONS NOW.

LARRY CRUMP: IF YOU'RE GOING TO PUMP THE WATER OUT, HOW ARE YOU GOING

TO STOP THE WATER IN THERE BECOMING CONTAMINATED SINCE THE CONTAMINATION IS
IN THE SOIL? BY THE WAY, WOULD YOU TAKE YOUR CHILD AND BRING HIM TO FOOTBALL OR SOFTBALL IN THAT FIELD TODAY? CAN ME AND MY SON GO ACROSS THE
STREET AND PASS THE FOOTBALL TO SOME OF MY FAMILY?

BERNIE HAYES: TO ANSWER YOUR QUESTION, I WOULD SAY YES. THE SITE VISITOR SCENARIO THAT WE EXAMINED - - -

LARRY CRUMP: WE'RE NOT VISITORS. WE'RE THERE EVERY DAY.

BERNIE HAYES: WELL, A VERY FREQUENT EXPOSURE - - - IT'S NOT JUST THE TYPE OF EXPOSURE OF SOMEONE WALKING

ACROSS THE SITE ONCE A YEAR OR SOMETHING LIKE THAT. FOR FREQUENCY OF EXPOSURE AND THAT SITE VISITOR THING IS GENERALLY I THINK TWO TIMES A WEEK,
SEVEN MONTHS OUT OF THE YEAR. SO UNLESS YOU'RE OVER THERE PLAYING ON THAT
PROPERTY OR VISITING THAT PROPERTY MORE THAN TWO OR THREE TIMES A WEEK, THEN
THE ANSWER IS YES, THEN THE RISK ASSOCIATED WITH EXPOSURE TO THE SURFACE
SOIL FROM AN INCIDENTAL BASIS IS VERY LOW.

LARRY CRUMP: P.C.P. IS SOMETHING THAT REALLY WORRIES ME. I HAVE A TEN
YEAR OLD SON I HAVE A HARD TIME KEEPING AN EYE ON TWENTY-FOUR HOURS AROUND
THE CLOCK.

BERNIE HAYES: I UNDERSTAND THAT. AND AT A LOT OF SITES THAT'S PROBLEM. AND I THINK THE RISK ASSESSMENT WOULD INDICATE - - - THE RESULTS
OF THE RISK ASSESSMENT TELL US THAT EVEN UNDER VERY FREQUENT EXPOSURE FROM A
SITE VISITOR CHILD PLAYING, SITE TRESPASSER, WHATEVER YOU WANT TO CALL IT
BASIS, THE RISK ASSOCIATED WITH THAT KIND OF EXPOSURE IS VERY LOW. I'M NOT
SAYING I WOULD LET YOUR SON GO OVER THERE AND PLAY FOOTBALL BECAUSE IT'S
SOMEBODY ELSE'S PROPERTY AND HE COULD GET HURT. I MEAN THINGS BESIDES ANY
CONTAMINATION THAT HE MIGHT EXPERIENCE OR ANY EXPOSURE HE MIGHT EXPERIENCE.
I'M NOT SAYING YOU SHOULD LET HIM GO OVER THERE AND PLAY FOOTBALL. I'M
SAYING IF HE GOES OVER THERE AND PLAYS ON

THE SITE ONCE IN A WHILE, THE LEVEL OF CONTAMINATION THAT EXISTS OVER THERE
IS NOT GOING TO BE A SUBJECT OF RISK TO HIS HEALTH.

BILL RUTLEDGE: WE'VE HAD THE PROPERTY POSTED FOR SEVERAL YEARS WITH
MANY SIGNS THAT HAVE BEEN TORN DOWN.

LARRY CRUMP: A FENCE WOULD BE MORE APPROPRIATE. I'M LARRY CRUMP. AND
I'M SURE MR. RUTLEDGE HAS PUT SIGNS UP BEFORE BECAUSE I'VE SEEN THEM UP
BEFORE. SOMETIMES IT'S PEOPLE. THERE ARE STILL PEOPLE THAT'S ILLITERATE.
THERE ARE STILL PEOPLE THAT DON'T PAY NO ATTENTION TO THE SIGNS. THEY MAY
BE WALKING AROUND LOOKING AT THE GROUND NOT SEEING A SIGN. BUT A FENCE, A
FENCE MAY KEEP PEOPLE FROM GOING ACROSS IT. IT MAY KEEP MY SON OUT OF IT
TOO.

JANE DAVENPORT: HAS THE CITY OF ROCK HILL BEEN ADVISED OF THE PROPOSED
PUMPING OF THE CHEMICAL CONTAMINATIONS AND HAVE THEY AGREED TO PARTICIPATE?

SANDY MYERS: YES, MA'AM, THEY HAVE.

JANE DAVENPORT: HAS THERE BEEN ENGINEERING COST ESTIMATES DONE ON WHAT
THE COST WILL BE TO DO THIS?

SANDY MYERS: THOSE COST ESTIMATES WERE LISTED HERE ON THIS CHART.
WE'RE PROPOSING ALTERNATIVE 4B WHICH IS ROUGHLY TWO MILLION DOLLARS.

JANE DAVENPORT: WHO DID THE ESTIMATE?

SANDY MYERS: IT WAS A PRIVATE CONTRACTOR THE EPA

HIRED, CDM, INC., BASED OUT OF ATLANTA.

JANE DAVENPORT: IS THERE A COPY OF THAT REPORT OR THAT ESTIMATE AVAILABLE?

SANDY MYERS: YES, MA'AM. THAT IS IN WHAT'S CALLED THE REMEDIAL
INVESTIGATION FEASIBILITY STUDY. THAT'S IN THE FEASIBILITY STUDY PORTION OF

THAT DOCUMENT.

TONY JANNETTA: AGAIN, IT SEEMS LIKE THE DIRECTION OF SOLVING THE PROBLEM, WHICH I AGREE THE PROBLEM NEEDS TO BE SOLVED AND IT'S NOT GOING TO GO AWAY, SO ONE OF THE ALTERNATIVES IS GOING TO BE SUGGESTED AND IT SOUNDS LIKE IT'S GOING TO BE DUMPING IT INTO THE CITY'S SEWAGE SYSTEM FOR TH CITY TO TREAT IT AT ITS OWN FACILITIES. MY SUGGESTION WOULD BE EPA AND THE CITY MAKE SURE THAT THE INFRASTRUCTURE THAT YOU'RE DUMPING THE CONTAMINATED WATER IN IS PROPERLY SECURED AND TIGHT AND IS NOT ANY KIND OF INFILTRATION FROM GROUNDWATER INTO THE SYSTEMS THAT YOU'RE DUMPING THE WATER IN. AND MY QUESTION WOULD BE WILL THE EPA INVESTIGATE THE CITY'S LATERAL LINES CONCERNING THE SEWER IF THERE'S GOING TO BE A SEWER DROP OR WILL THE CITY PROVIDE THE NECESSARY VIDEO INSPECTIONS OF THE LINE TO MAKE CERTAIN THAT THOSE LINES ARE NOT LEACHING WATER, WHICH IF YOU DUMP WATER IN IT WOULD LEACH BACK OUT INTO THE GROUNDWATER GROUND AGAIN AND YOU HAVE TO REDUPLICATE THE PROCESS SOMEWHERE DOWN THE LINE. SO YOU'RE GOING TO HAVE TO MAKE CERTAIN IF THE CITY'S

GOING TO USE THEIR SYSTEMS, THEIR LINES ARE PROPERLY INTACT BECAUSE I DON'T KNOW WHAT THE DISTANCE WOULD BE FROM THERE TO THE TREATMENT PLANT. AND RIGHT NOW, WE HAVE A TREATMENT PLANT OUT HERE ON CHERRY ROAD AND DO YOU KNOW THE DEPTH OF THAT? THAT COULD BE A PROBLEM.

SANDY MYERS: I HEAR YOUR CONCERN. IT'S ON THE RECORD.

TONY JANNETTA: AND ALL THOSE CONCERNS AUGHT TO BE ADDRESSED BY THE EPA AND THE CITY BEFORE THEY ACCEPT THIS MONUMENTAL CONTRACT BECAUSE I STILL SAY ON SITE CLEANING OF THE CONTAMINATION THEN DUMPING IT INTO THE SYSTEM WOULD PROVIDE A SAFER ENVIRONMENTAL SITUATION. MY QUESTION WOULD BE IS THE CITY STILL TREATING THEIR TREATED WATER, ARE THEY TREATING THEIR WATER WITH CHEMICALS THAT YOU HAVE ALLUDED TO THAT ARE IN THE GROUNDWATER

NOW? ARE
THEY TREATING THE CITY'S WATER WITH CHEMICALS THE WAY IT WOULD
DEVIATE OUR
DRINKING WATER? IF THAT WERE THE CASE, THEY WOULD HAVE THE
FACILITIES TO DO
IT AND THE KNOWLEDGE TO DO IT.

SANDY MYERS: RIGHT. LET ME SAY THIS TREATMENT FACILITY IS VERY
WELL
AWARE OF WHAT TYPE CONTAMINANTS WE'VE GOT AT THIS SITE, AND THEY'RE
ALSO
VERY WELL AWARE THAT THEY CAN TREAT THESE CONTAMINANTS. THESE
CONTAMINANTS
ARE NOT VERY DIFFICULT TO TREAT. AS BERNIE MENTIONED BEFORE, THE
TREATMENT
SYSTEMS THAT THEY

ALREADY HAVE IN PLACE, SUCH AS ACTIVATED SLUDGE, THAT ALONE CAN
TAKE CARE OF
THESE CONTAMINANTS.

TONY JANNETTA: YOU'RE LOOKING AT SOME OLD LATERAL LINES THAT YOU
MAY
BE DUMPING INTO THAT MAY HAVE A PROBLEM.

SANDY MYERS: RIGHT. THAT'S A DIFFERENT ISSUE THAN WHETHER THE
TREATMENT PLANT CAN TREAT THE WATER. AND I AGREE WITH YOU, THAT'S
SOMETHING
I'LL HAVE TO LOOK INTO.

BERNIE HAYES: JUST ONE CLARIFICATION THERE. CERTAINLY SEWER LINES
ARE
NOT PRESSURE LINES SO YOU CAN HAVE WATER LEAK INTO THEM OR WATER
LEAK OUT OF
THEM. IN THIS PART OF THE COUNTRY, WATER LEAKING OUT OF SEWER LINES IS
USUALLY NOT THE PROBLEM; USUALLY IT'S WATER LEAKING INTO THE SEWER
LINES.
SO IT'S SOMETHING WE PROBABLY COULD TAKE A LOOK AT DURING THE DESIGN
PHASE
TO MAKE SURE THAT WE'RE NOT GOING TO CREATE ANY WHAT YOU CALL
EX-FILTRATION
 PROBLEMS FROM SEWER LINES. BUT IN THIS PART OF THE COUNTRY, YO
USUALLY
HAVE MUCH MORE OF A PROBLEM WITH LEAKING INTO THE SEWER LINES. SO
WHILE
YOU'RE RIGHT IF WE TREATED IT ON SITE IT WOULD COMPLETELY ELIMINATE
THAT
PROBLEM, IT'S PROBABLY NOT A SERIOUS PROBLEM, BUT IT'S SOMETHING WE
CAN LOOK
AT DURING THE DESIGN.

TONY JANNETTA: YOU HAVE VIDEO CAMERAS THAT GO DOWN THE LINE AND CHECK
IT IN ITS ENTIRETY.

BERNIE HAYES: THOSE DO EXIST, BUT WHETHER OR NOT IT'S SOMETHING THAT'S
NECESSARY TO BE DONE IS SOMETHING WE'LL JUST HAVE TO LOOK AT.

JERRY COLLINS: MY NAME IS JERRY COLLINS. THE ONLY LAST QUESTION I
HAVE IS THAT I'M CONCERNED WITH JUST DUMPING THE CHEMICAL AT THE
D.O.T.
BECAUSE NATIONAL STATUS HAS JUST RELEASED THAT IT'S EITHER LIKE 900
TREATMENT FACILITIES IN SOUTH CAROLINA ARE NOT UP TO PAR FOR FRESH
DRINKING
WATER. SO RIGHT NOW, WE DON'T KNOW WHETHER WE'RE GETTING ADEQUATE
TREATMENT
OF THE WATER AS IT IS. I'M CONCERNED WITH WHAT I'M DRINKING NOW. I HAD
MEN
WITH ROCK HILL, THE CITY, AND TEST MY WATER IN THE HOUSE I JUST BOUGHT
BECAUSE IT'S BEEN TASTING FUNNY EVER SINCE I BOUGHT THE HOUSE. SO MY
CONCERN IS THE WATER I'M DRINKING NOW WITH THE NATIONAL AVERAGES
THEY SAY
THAT ALL THE STATES, NORTH CAROLINA AND SOUTH CAROLINA INCLUDED,
THE WATER
TREATMENT IS NOT UP TO PAR AND IT'S NOT MEETING STANDARDS. SO YOU'RE
GOING
TO DUMP THIS CHEMICAL IN ON TOP OF IT AND I'M GOING TO DRINK THAT FOR 30
YEARS. IN 30 YEARS YOU'RE GOING TO TREAT, RUN THIS SYSTEM, 30 YEARS IS
HOW
LONG IT WOULD TAKE BEFORE I FOUND OUT WHETHER I HAVE CANCER OR NOT
PROBABLY.
THAT'S MY BIGGEST CONCERN THAT YOU'RE GOING TO DUMP THIS IN ON TOP OF
WHAT
ALREADY THEY'RE TRYING TO TREAT NOW WHICH I DON'T THINK MY BELIEF IS
INADEQUATE ANYWAY.

SANDY MYERS: YOU'VE ALLUDED TO A HANDFUL OF ISSUES.

JERRY COLLINS: BUT ALL I'M SAYING IS I THINK IT SHOULD BE TREATED ON
SITE AND THEN DUMPED. THAT'S THE BOTTOM LINE.

BERNIE HAYES: JUST ONE QUICK RESPONSE TO THAT. I DON'T WANT Y'ALL
TO
GET THE IMPRESSION THAT WE'RE JUST TRYING TO SAY THAT NONE OF YOUR
CONCERNS
ARE YOU SHOULD BE CONCERNED ABOUT THEM, BECAUSE THAT'S NOT TRUE.
BUT WE
NEED TO BE CAREFUL THAT WE KEEP SEWAGE TREATMENT AND WATER

TREATMENT
SEPARATE. THIS WATER IS GOING TO A SEWAGE TREATMENT PLANT AND NOT A
DRINKING WATER PLANT.

     JERRY COLLINS: WHERE DOES THE LIQUID THAT IS BEING RUN OFF FROM
THAT
WASTE TREATMENT, WHERE IS IT GOING?

     BERNIE HAYES: WELL, IT'S GOING TO GO BACK, YOU'RE RIGHT, INTO A RIVER
OR CREEK SOMEWHERE AND DEPENDING ON WHAT WATER SOURCE IS USED FOR
- - -

     JERRY COLLINS: WELL, I UNDERSTAND THAT. THAT LIQUID WAS BEING
CLEANED
AND THAT IS YOUR DRINKING WATER. THAT IS INCORRECT?

     BERNIE HAYES: NO. IN A LOT OF CASES, IT IS. BUT IT DEPENDS ON WHERE
 YOU ARE IN RELATION TO THE DISCHARGE FROM THIS PLANT. I DON'T KNO
WHERE
THE WATER SUPPLIED FOR THE CITY AROUND HERE IS. IS IT SURFACE WATER
OR
GROUNDWATER?

     AUDIENCE: RIVER.

     JANE DAVENPORT: WOULD A STUDY NOT BE DONE TO MAKE SURE THAT IT
DOESN'T
GET BACK IN OUR DRINKING WATER? I WOULD THINK THAT WOULD BE PART OF
THE
PROCESS.

     SANDY MYERS: I THINK A STUDY OF THAT NATURE IS VIRTUALLY
IMPOSSIBLE.
I THINK THAT IF YOU'RE GOING TO TAKE WATER IN A SEWAGE TREATMENT
PLANT THAT
THEY DISCHARGE INTO A CREEK AND THEN SOMEHOW OR ANOTHER TRACK
THAT WATER
DOWN TO A DRINKING WATER PLANT THROUGH THE PLANT DOWN THE LINES TO
YOUR TAP,
THAT'S VERY DIFFICULT.

     BERNIE HAYES: AND LET'S KEEP THIS IN PROSPECTIVE. OKAY? IF YOU HAVE
A DRINKING WATER PLANT THAT'S DRAWING FROM A RIVER IN THIS AREA, IT'S
NOT AS
IF THE EFFLUENT FROM THE SITE IS GOING TO DIRECTLY INTO THAT RIVER. OR
EVEN
IF YOU ASSUME IT'S GOING TO BE TREATED, THAT THAT'S THE ONLY THING
THAT'S
GOING INTO THAT RIVER AND IT'S THE ONLY THING THAT THAT WATER
TREATMENT
PLANT HAS TO DEAL WITH. YOU COULDN'T GO DOWN TO THE RIVER AND DRINK

RIGHT
OUT OF IT. THAT WATER TREATMENT PLANT IS RESPONSIBLE FOR TREATING
THAT
WATER AND REMOVING WHATEVER IS IN THERE TO MAKE THAT WATER SAFE,
UNDER THE
SAFE DRINKING WATER ACT, NO MATTER WHAT'S IN THERE, NO MATTER WHERE
IT'S
COMING FROM. SO YOU DO HAVE THIS ROUTE, THIS POTENTIAL ROUTE OF
CONTAMINANTS FROM THIS SITE SOMEHOW GETTING THROUGH THE SEWER
SYSTEM AND
INTO

THE RIVER AND BACK INTO THE DRINKING WATER PLANT, BUT WHAT YOU HAVE
IS
UNLESS THEY'RE UPSTREAM FROM ONE ANOTHER, WHICH IS WHAT I THINK THIS
GENTLEMAN HAS ALLUDED TO, BUT EVEN IF THAT WERE THE CASE, YOU'VE GOT
A
SEWAGE TREATMENT PLANT THAT'S DESIGNED TO REMOVE THE CONTAMINANT
BEFORE IT
GOES INTO THE RIVER AND YOU'VE GOT A WATER TREATMENT PLANT
DESIGNED TO
REMOVE THE CONTAMINANTS AS THEY COME OUT OF THE RIVER. AND BOTH OF
THOSE
PLANTS ARE REGULATED BY THE STATE OF SOUTH CAROLINA AND OVER YOU
ALL BY EPA
TO MAKE SURE THAT THEY ARE FUNCTIONING PROPERLY. AND I'M NOT GOING
TO SAY
THAT THEY ALWAYS FUNCTION PROPERLY, BUT - - -

JERRY COLLINS: IN THE NATURAL STATUS OF RELEASE THEY SAID THAT THE
MAJORITY OF THEM WERE NOT UP TO PAR. HOW DO WE FIND THAT OUT IS MY
NEXT
QUESTION?

BERNIE HAYES: WELL, THAT'S PART OF - - -

JERRY COLLINS: WE MAY NOT DRINK THE WATER OUT OF THAT WELL, OUT
OF
THAT PLUME, BUT WE'RE STILL DRINKING TREATED WATER. DOESN'T MATTER
WHAT'S
BEEN DUMPED IN IT; WE'RE DRINKING IT, AND WE DON'T KNOW WHAT WE'RE
DRINKING.

BERNIE HAYES: WELL, YOU CAN FIND THAT OUT. THE MONITORING AND
COMPLIANCE RECORDS FOR A PUBLIC WATER SUPPLY ARE A MATTER OF - - -

JERRY COLLINS: WELL, I'VE HAD THE WATER TESTED

BUT I'M NOT SATISFIED STILL. I'VE HAD THEM COME OUT AND TEST IT TWICE, AND
MY WATER STILL TASTES FUNNY.

BERNIE HAYES: THE OTHER THING YOU CAN DO IS ASK THE PUBLIC WATER SUPPLY FOR THEIR RECORDS OF THEIR TESTING AND THAT'S A MATTER OF PUBLIC
RECORD. IF YOU HAVE A PROBLEM WITH THEM, I IMAGINE DHEC COULD HELP YOU WITH
IT, THE STATE COULD HELP YOU WITH GETTING THOSE RECORDS. THEY'RE REQUIRED
TO TEST THE WATER FOR A WIDE RANGE OF CONTAMINANTS ON A REGULAR BASIS - -

JERRY COLLINS: BUT THEY POLICE THEMSELVES; NOBODY POLICES THEM.

BERNIE HAYES: NO. THE STATE POLICES THEM AND TO SOME EXTENT THE EPA
POLICES THEM.

JANE DAVENPORT: I HAVE A QUESTION. THAT GENTLEMAN SAID SOMETHING ABOUT IF THE SOIL IS NOT REMOVED THAT THE CONTAMINANTS ARE CONTAINED IN THE
SOIL AND IF THE SOIL ON THE SITE IS NOT REMOVED, WON'T THE WATER BE CONTAMINATED AGAIN? AND I DIDN'T HEAR A RESPONSE TO THAT.

SANDY MYERS: OKAY. I MIGHT ASK YOU TO CLARIFY, BUT I THINK I CAN ANSWER YOUR QUESTION. THERE IS CONTAMINATION PRESENT IN THE SUBSURFACE AND
SURFACE SOILS; BUT THE CONTAMINATION THAT'S PRESENT, THEY'RE NOT AT LEVELS
THAT POSE AN UNACCEPTABLE RISK.

JERRY COLLINS: BUT I WAS THE ONE THAT ASKED THAT

QUESTION. MY QUESTION WAS IS THAT THE WATER IS BEING CONTAMINATED FROM THE
CHEMICALS IN THE SURFACE SOIL. IS THAT CORRECT?

SANDY MYERS: NOT NECESSARILY, NO.

JERRY COLLINS: HOW IS THE WATER BEING CONTAMINATED?

SANDY MYERS: THE CONTAMINANTS CAN BE INTRODUCED AT THE SURFACE SOILS,
AND THEY CAN LEACH DOWN TO THE GROUNDWATER OVER A PERIOD OF 30 YEARS.

JERRY COLLINS: RIGHT, BUT THE WATER IS BEING CONTAMINATED FROM THE SOIL THAT'S ON THE PROPERTY. RIGHT?

SANDY MYERS: NOT NECESSARILY, NO. I MEAN THE CONTAMINANTS CAN BE DOWN
IN THE GROUNDWATER.

TONY JANNETTA: WAS IT DUMPED IN THE WELL OR DID IT GO THROUGH THE SOIL?

SANDY MYERS: IT WENT THROUGH THE SOIL.

JERRY COLLINS: BUT THE CHEMICALS ARE STILL IN THE SOIL. CORRECT?

SANDY MYERS: YES. THERE ARE CHEMICALS IN THE SOIL.

JERRY COLLINS: ALL RIGHT, BUT WHAT YOU'RE BASICALLY GOING TO BE DOING
THOUGH IS THE CONSTANTLY FILTRATION SYSTEM WHERE THE WATER GOES DOWN THROUGH
THE SOIL GETS DOWN TO WHERE THE PLUME IS AND YOU PUMP IT OUT

AND IT'S JUST A CONSTANT - - - YOU'RE LETTING THE DIRT BASICALLY FILTER OUT
THE CHEMICAL. EVENTUALLY YOU'RE HOPING THERE WILL BE NO MORE CHEMICAL LEFT
TO GET DOWN TO THAT WATER LEVEL. RIGHT?

SANDY MYERS: NO. THAT'S NOT THE WAY THAT I SEE THIS.

JANE DAVENPORT: THE WATER CANNOT BE CONTAMINATED AGAIN ONCE THIS IS
DONE?

SANDY MYERS: I WOULD NEVER MAKE THAT STATEMENT. I CAN'T WALK INTO
THAT ONE. BUT I CAN SAY - - -

LARRY CRUMP: I'M LARRY CRUMP. WHY DO YOU KEEP BEATING AROUND THE BUSH
AROUND NOT TAKING THE SOIL OUT OF THERE? THERE'S WHERE THE CONTAMINATION IS
COMING FROM.

BERNIE HAYES: I THINK THE ANSWER TO THAT IS THE VAST MAJORITY OF
CONTAMINATED SOIL HAS ALREADY BEEN REMOVED. I THINK IT'S A VALID COMMENT
AND A VALID CONCERN ON YOUR ALL'S PART THAT WE MAKE SURE THAT THAT'S BEEN
SUFFICIENTLY DONE. AND THAT'S SOMETHING WE CAN TAKE BACK MAKE SOME DECISION
ABOUT. I'M NOT GOING TO SIT HERE AND PROMISE YOU THAT WE'RE GOING TO LOOK
AT WHAT SOIL IS LEFT THERE AND TAKE MORE OF IT OUT, BUT THAT'S PART OF

THE
PUBLIC PARTICIPATION PROCESS IS TO LISTEN TO THESE COMMENTS, GO BACK,
LOOK
AT THE DATA AGAIN, TRY TO MAKE A DECISION ABOUT WHETHER OR NOT

ADEQUATE SOIL REMOVAL HAS BEEN DONE. AND YOU KNOW WHEN WE MAKE
A DECISION
ABOUT WHAT TO DO AT THE SITE, LET Y'ALL KNOW THEN AGAIN WHAT THE
DECISION
IS. BUT THE BOTTOM LINE, THE BASIC ANSWER TO YOUR QUESTION RIGHT NOW
IS THE
VAST MAJORITY OF CONTAMINATED SOIL HAS ALREADY BEEN REMOVED FROM
THE SITE.
LIKE SANDY SAYS, WE CAN'T SIT HERE AND PROMISE YOU THAT EVERY LAST
PARTICLE
HAS BEEN REMOVED TO THE POINT WHERE NO FURTHER LEACHING INTO
GROUNDWATER
WILL TAKE PLACE, BUT - - -

JERRY COLLINS: WHY ARE THE LEVELS SO HIGH STILL THEN IF THE SOIL HAS
BEEN REMOVED, AND THIS WAS A LONG TIME AGO THAT THE SOIL WAS
REMOVED? WHY
ARE THE LEVELS SO HIGH THEN IN THE WATER? IF IT'S THAT HIGH, 17,000
MILLIPARTS OR WHATEVER.

BERNIE HAYES: GROUNDWATER TAKES A VERY LONG TIME TO CLEAN ITSELF
UP,
IF YOU WILL. I MEAN THAT'S NOT EVEN THE RIGHT TERM TO USE.

JERRY COLLINS: IT'S NOT JUST GOING TO SIT THERE; IT'S GOT TO GO
SOMEWHERE, THAT WATER.

BERNIE HAYES: IT CAN SIT THERE FOR A VERY LONG TIME.

JERRY COLLINS: IT'S GOT TO GO SOMEWHERE. IT'S GOING TO BUILD UP TO
 THE POINT THAT WATER HAS TO GO SOMEWHERE, EITHER INTO A WELL SYSTE
OR MOVE
ON TO OTHER GROUNDS OR CREEKS OR SOMETHING.

SANDY MYERS: ONE POINT I'D LIKE TO MAKE IS THAT THE PHYSICAL
CHARACTERISTICS OF THE CHEMICALS THAT WE'RE TALKING ABOUT,
ESPECIALLY THE
THREE VOLATILES, THEIR DENSITY IS HEAVY THAN WATER. WHAT THAT MEANS
IS
ESSENTIALLY THEY SINK. SO THESE CONTAMINANTS, THEY HAVE THE ABILITY
TO SINK
THROUGH THE SURFACE SOILS, THROUGH THE SEDIMENT - - - I MEAN THROUGH
THE

SUBSURFACE SOILS DOWN IN THROUGH THE GROUNDWATER. THEY HAVE THE ABILITY TO
SINK LIKE THAT. THEY DON'T NECESSARILY JUST FLOW OFF THE SITE SOMEWHERE.
THAT'S HOW YOU CAN REACH SUCH HIGH CONCENTRATIONS AFTER A 30 YEAR PERIOD.

JERRY COLLINS: WELL, I'M SURE THEY'RE BELOW THAT WATER LEVEL, AND THEY'LL PROBABLY STAY THERE AND KEEP ON SINKING DOWN INTO THE EARTH HOPEFULLY AND CLEAN THEMSELVES UP.

SANDY MYERS: THAT'S A GOOD POINT.

BERNIE HAYES: YOU'RE HITTING THE NAIL RIGHT ON THE HEAD WITH HOW DIFFICULT THIS REMEDIATION OF GROUNDWATER CONTAMINATION IN THIS FASHION CAN
BE.

JERRY COLLINS: BUT IN NONE OF THESE STUDIES ANYONE HAS SAID ABOUT FURTHER REMOVAL OF DIRT. ALL YOU'RE TALKING ABOUT IS PUMPING WATER OUT.
YOU'RE NOT TALKING ABOUT CLEANING UP THE SOIL THAT'S THERE, REMOVING IT.

SANDY MYERS: THAT'S CORRECT. AND THE REASON WE'RE SAYING THAT IS BECAUSE THE LEVELS OF CONTAMINATION THAT

WE HAVE IN THE SOILS DO NOT POSE AN UNACCEPTABLE RISK.

GLEN PELLETT: MY NAME IS GLEN PELLETT AGAIN. ONE THING WE MAY BE MISSING IS THAT IT WASN'T THE SOIL THAT CONTAMINATED THE GROUNDWATER; IT WAS
WASTE THAT WAS PLACED IN AND ON THAT SOIL, AND I BELIEVE ALL THE WASTE HAS
BEEN REMOVED. IS THAT CORRECT?

SANDY MYERS: WELL, THE ABOVE GROUND STORAGE TANKS HAVE BEEN REMOVED.
YES. AND SOME OF THE OBVIOUS SOIL - - - IN THE PAST REMOVALS, SOME OF THE
SOILS, WE HAD THE REMOVALS WHERE THEY TOOK OUT THE SOILS.

GLEN PELLETT: SO THAT WAS SORT OF THE SOURCE OF THE CONCENTRATION.

JERRY COLLINS: EVERY TIME YOU CHANGE YOUR OIL AND DUMP IT IN YOUR BACKYARD AND FIVE YEARS FROM NOW DIG A WELL AND DRINK THAT WATER. DIG THE
DIRT UP FIRST THOUGH AND PUT SOME FRESH DIRT DOWN, BUT THEN DRINK THAT
WATER. YOU'RE NOT GOING TO GET IT OUT. IT'S IN THAT DIRT AND THAT'S

SEEPING DOWN, IT'S CONTINUALLY SEEPING, BLEEDING DOWN AS A FILTERING SYSTEM
BASICALLY, THE SOIL IS. YOU CAN ONLY GET SO MUCH DIRT OUT. YOU CAN'T DIG
DOWN 54 FEET AND TAKE OUT ALL THAT SOIL DOWN TO THE WATER LEVEL.

TONY JANNETTA: I'D LIKE TO ASK A QUESTION IN REFERENCE TO ONCE THIS IS
DONE WHETHER YOU DUMP IT AND TREAT THE WATER AND YOU REMOVE THE AREA OF THE
PLUME AND YOU FEEL COMFORTABLE THAT YOU'VE REMOVED THAT MUC WATER

AND IT'S SUFFICIENT AND EVERYTHING TESTS OUT OKAY AT A CERTAIN POINT IN
TIME, WHAT WILL THE EPA AND THE STATE DO TO MAKE CERTAIN THAT THE PROBLEM
DOES NOT EXIST IN THE FUTURE. WILL THEY STILL REMAIN - - - WILL THERE BE
TESTING AFTERWARDS?

SANDY MYERS: YES. THERE WILL BE LONG TERM MONITORING. WE WILL MAKE
SURE THAT THE PROBLEM DOESN'T POP UP AGAIN. THAT'S THE WHOLE PURPOSE OF OUR
MONITORING PROGRAM. YES.

TONY JANNETTA: THROUGHOUT THE SITE? THROUGHOUT THE NEIGHBORHOOD?

SANDY MYERS: YES, THROUGH THE WELLS THAT WE WILL HAVE ON THE SITE. AT
THIS POINT, WE DON'T KNOW EXACTLY WHERE THE WELLS ARE GOING TO BE. WE
DECIDE THAT IN THE DESIGN PHASE. WE'LL DECIDE WHERE THE ACTUAL WELLS WILL
BE PLACED, BUT THERE WILL BE COMPLIANCE WELLS PLACED, AND WE'LL MONITOR
THOSE WELLS.

TONY JANNETTA: SINCE WE KNOW THOSE CHEMICALS ARE DEEPER THAN THE WATER
STRATUM, WILL THERE BE DEEPER WELLS?

SANDY MYERS: SINCE - - -

LARRY CRUMP: HOW DID THAT BANK GET BUILT THERE ON THAT SOIL IF THE KIND OF CONTAMINATION EXISTED?

JERRY COLLINS: THEY TRIED TO CLEAN IT UP. THEY DUG UP THREE FEET.

LARRY CRUMP: THEY DIDN'T DIG DEEP ENOUGH, MY FRIEND.

JERRY COLLINS: I KNOW THAT.

LARRY CRUMP: THEY STILL BUILT.

JERRY COLLINS: AND THEY'RE NOT INCLUDING THIS BANK, THAT PROPERTY, IN THIS CLEANUP. IF THE PLUME DOES GO UNDERNEATH THE PROPERTY OF THAT BANK, THE SOIL THREE FEET UNDER WHERE THEY EXTRACTED THAT SOIL, IT'S STILL CONTAMINATED AND HOPEFULLY IT WILL BE CLEANED UP ON ITS OWN WHEN IT FILTRATES OUT. BUT IT'S GOT CONCRETE COVERING THAT SOIL OVER THAT WHERE THE SITE IS AND I DON'T SEE HOW THE RAINWATER, THE WATER TABLE, WHATEVER, CAN FILTER THAT OUT. THAT'S TRAPPED UNDER THAT CONCRETE.

SANDY MYERS: WE'LL HAVE TO LOOK INTO THAT.

MARK DAVIS: LET ME CLARIFY THAT. THE BANK REMOVED THAT SOIL WHICH WAS CONTAMINATED, AND THEY DID THAT REMOVAL WITH OVERSIGHT FROM EPA AND THE STATE OF SOUTH CAROLINA.

JERRY COLLINS: RIGHT, BUT THEY ONLY TOOK OUT ABOUT THREE FEET OF SOIL.

MARK DAVIS: THEY TOOK OUT THE HOT SPOTS, THE AREAS THAT HAD THE CONTAMINATED SOIL. THEY REMOVED ALL THAT SOIL

JERRY COLLINS: THREE FEET OF IT. THEY ONLY TOOK OUT THREE FEET.

MARK DAVIS: THAT'S RIGHT. THAT'S ALL THEY TOOK OUT.

JERRY COLLINS: FROM THE TIME THAT THAT LIQUID, THE CHEMICALS, WERE LEAKING FROM 1964, WHO'S TO SAY IT DIDN'T GO FOUR FEET, FIVE FEET, IN THAT SITE IN THAT AREA?

TONY JANNETTA: THEY WERE NOT TESTING WELLS AT THAT POINT IN TIME.

MARK DAVIS: THEY WEREN'T ANY TESTS OF WELLS, BUT THERE WAS SOIL TESTING.

JERRY COLLINS: THEY DIDN'T DO ANY SOIL TESTING ON THAT SITE WHERE THAT

BANK IS.

MARK DAVIS: BACK WHEN THEY DID THE REMOVAL, YES, THEY DID.

JERRY COLLINS: BACK IN THE REMOVAL. WHAT ABOUT NOW?

MARK DAVIS: RIGHT. THEY HAD GOTTEN A CLEAN BILL OF HEALTH FROM THE
STATE OF SOUTH CAROLINA STATING THAT THAT SOIL THAT WAS LEFT AFTER THE
EXCAVATION WAS CLEAN - - -

JERRY COLLINS: BACK THEN. WHAT ABOUT NOW? NO ONE DID ANY TESTS ON
THAT PROPERTY NOW. THEY'RE NOT EVEN - - -

BERNIE HAYES: IF IT WAS CLEAN THEN IT'S CERTAINLY

NOT GOING TO GET ANY WORSE OVER TIME. IT'S ONLY GOING TO GET BETTER.

LARRY CRUMP: HOW DO YOU KNOW IT'S CLEAN NOW?

TONY JANNETTA: WHY DON'T YOU BUILD A DIAGONAL WELL AND GO UP UNDER THE
BANK AND SEE IF THERE'S ANYTHING - - -

MARK DAVIS: WE KNOW THERE'S GROUNDWATER CONTAMINATION UNDER THAT BANK
PROPERTY. THAT'S GOING TO BE EXTRACTED ALONG WITH THE REST OF THE
GROUNDWATER DURING THE REMEDIATION.

JERRY COLLINS: YOU DIDN'T EVEN TELL US IN THE BEGINNING THAT THAT
PROPERTY THAT THAT BANK IS SITTING ON WAS ORIGINALLY OWNED BY THAT CHEMICAL
COMPANY. YOU'VE GOT A BARRIER DRAWN AROUND THAT PROPERTY.

MARK DAVIS: THAT PROPERTY WASN'T OWNED - - - THE CHEMICAL COMPANY
DIDN'T OWN ANY OF THAT PROPERTY. THE CHEMICAL COMPANY OPERATED ITS FACILITY
ON THAT AREA, BUT THAT PART WHERE THE BANK IS WAS NOT THE PHYSICAL LOCATION
OF THE CHEMICAL COMPANY. ACTUALLY, THE TWO HOT SPOTS THAT THE REMOVAL WAS
DONE THAT SANDY MENTIONED EARLIER, THAT IS THE LOCATION OF TH CHEMICAL
COMPANY'S OPERATIONS. FOR SOME UNKNOWN REASON, THE OPERATOR OF THAT
CHEMICAL COMPANY TOOK ITS CHEMICALS AND TRANSFERRED OVER TO THE AREA WHERE
THE BANK IS.

JERRY COLLINS: YOU'RE SAYING THAT THEY NEVER OWNED

THE PROPERTY WHERE THE BANK IS SITTING?

MARK DAVIS: THE CHEMICAL COMPANY NEVER OWNED ANY OF THAT PROPERTY.

JERRY COLLINS: IT'S JUST OUT OF THE WAY OF THE BOUNDARY THAT'S DRAWN OUT AROUND IT, IT LOOKS LIKE IT WOULD BE A FULL BLOCK OR WHATEVER.

MARK DAVIS: THE REASON THAT WAS DRAWN OUT IS BECAUSE IT WAS NOT PART OF THE CHEMICAL COMPANY'S OPERATIONS, NUMBER ONE.

JERRY COLLINS: OPERATIONS, BUT THEY NEVER OWNED THAT PROPERTY?

MARK DAVIS: RIGHT. THEY DIDN'T OWN THAT PROPERTY, BUT THEY OPERATED ON THAT PROPERTY.

JANE DAVENPORT: THEY DUMPED ON IT.

MARK DAVIS: THEY DUMPED ON IT. THEY WERE LIKE A MIDNIGHT DUMPER, WHAT YOU WOULD CALL A MIDNIGHT DUMPER ON THE PROPERTY WHERE THE BANK WAS LOCATED.

JERRY COLLINS: WHAT IT SAID IN THE PAPERS THAT THIS WAS NOT JUST WHERE THEY WERE STORING THE CHEMICALS, THEY WERE TRYING TO CLEAN IT UP. THIS IS A COMPANY THAT CLEANED CHEMICALS, CLEANED UP THE WASTE, THAT THEY WERE ACTUALLY DUMPING IT ON SITE. SINCE 1964, THERE'S NO TELLING HOW MUCH IS IN THAT SOIL DOWN THERE.

MARK DAVIS: WE HAVE DONE SOIL SAMPLING THROUGHOUT THAT WHOLE AREA.

JERRY COLLINS: ESPECIALLY WHERE THE BANK'S AT, YOU'RE SAYING THAT'S WHERE THEY WERE DUMPING IT AT.

MARK DAVIS: THAT'S WHERE THEY DID DUMPING. THAT'S WHERE THE BANK EXCAVATION - - -

JERRY COLLINS: IT'S KIND OF ODD THAT THREE FEET OF SOIL WAS REMOVED

THEN BOOM, THE BUILDING WAS BUILT ON TOP OF THAT. THAT'S A HOT SPOT.

TONY JANNETTA: YOU'RE NOT BEING CONCLUSIVE AFTER GOING THROUGH ALL THIS AND PUMP ALL THIS SOMEWHERE, AND THERE'S ANOTHER PROBLEM SOMEWHERE ELSE. YOU WANT TO BE CONCLUSIVE IN THE OTHER AREAS BEFORE YOU SINK IN TWO MILLION DOLLARS TO DO SOMETHING WHEN YOU MIGHT HAVE TO REDO IT AGAIN.

SANDY MYERS: CERTAINLY. ABSOLUTELY.

TONY JANNETTA: YOU WANT TO BE SURE ABOUT IT.

SANDY MYERS: WE SURE DO.

BERNIE HAYES: LIKE I SAID, THIS IS GOOD DISCUSSION. IT'S IMPORTANT THAT WE GET THESE THINGS ON THE TABLE SO THAT WE CAN - - - I MEAN WE CAN'T ANSWER YOUR QUESTIONS ABOUT WHETHER OR NOT SUFFICIENT SOIL REMOVAL WAS DONE UNDER THE BANK. OBVIOUSLY WE FROM OUT INVESTIGATIONS FEEL THAT THERE WAS. BUT THE FACT THAT IT'S SUCH A MAJOR POINT OF CONCERN FOR SEVERAL PEOPLE HERE MEANS THAT WE NEED TO GO BACK AND TAKE A LOOK AT - - -

JERRY COLLINS: YOU DIDN'T CHECK IT OUT. YOU JUST LOOKED AT OLD REPORTS SAYING THAT THEY WERE CONCLUSIVE BACK IN 1985. YOU DIDN'T DO ANY STUDIES, RESEARCH SOIL SAMPLES NOW.

BERNIE HAYES: THAT MAY BE A VALID CRITICISM, AND WE CAN GO BACK AND TAKE A LOOK AND DETERMINE WHETHER OR NOT WE IN FACT NEED TO DO MORE WORK THERE.

TONY JANNETTA: YOU'VE GOT PROPERTY IN THE AREA THAT MAY BE REDEVELOPED, MY BUSINESS, ALL OF OUR HOMES. LET'S JUST SAY FOR BUSINESS PRACTICE. AND THEY'RE GOING TO HAVE TO GO THROUGH THE SAME PROCEDURE KNOWING THAT THAT'S A CONTAMINATED AREA, THAT'S GOING TO BE RIGHT UP FRONT. THEY'RE GOING TO HAVE TO HAVE ALL KINDS OF ANALYSIS DONE BEFORE THEY CAN GET PERMITS AND EVERYTHING TO MAKE SURE THAT THEIR PROPERTY IS SAFE. AND YOU'VE GOT SOME UNDEVELOPED LAND AROUND THERE THAT'S GOING TO BE

DEVELOPED ONE OF
THESE DAYS, AND THIS MAY COME BACK TO HAUNT THEM AND Y'ALL.

JERRY COLLINS: WHAT IF THIS PROPERTY IS EVER SOLD WHERE THE BANK SITS?
THE FRESH CITY WATER COMING UP THROUGH THAT PROPERTY, THAT'S WHERE THE PLUME
AREA IS. I CERTAINLY WOULDN'T EVER WANT TO WORK THERE AND GO IN TO USE THE
BATHROOM AND DRINK WATER OR SOMETHING LIKE THAT. I CERTAINLY WOULDN'T WANT
TO WORK THERE.

MARK DAVIS: LET ME CLARIFY SOMETHING. SIMPLY

BECAUSE THE MAP THAT SANDY HAS DRAWN CARVED OUT THE BANK DOESN'T MEAN THAT
THAT GROUNDWATER THAT IS LOCATED UNDERNEATH THE BANK IS NOT GOING TO BE
CLEANED UP. THAT IS ALL GOING TO BE PART OF THE OVERALL CLEANUP. WE'RE
TALKING ABOUT ONE OBSTACLE - - -

JERRY COLLINS: WATER EXTRACTION ONLY. THE SOIL IS NOT GOING TO BE CLEANED UP.

MARK DAVIS: THE SOIL RECEIVED A CLEAN BILL OF HEALTH.

JERRY COLLINS: BACK IN '85, THREE FEET OF IT.

BERNIE HAYES: AGAIN, LET'S TRY TO PULL BACK FROM THIS A LITTLE BIT AND
TRY TO KEEP IT IN PROSPECTIVE. WE SAMPLED THE SOILS.

JERRY COLLINS: THAT PROPERTY WILL GO REAL CHEAP.

BERNIE HAYES: THE ONLY - -

LARRY CRUMP: DID Y'ALL DO A SAMPLE UP AROUND BY THE BANK? HOW COME
Y'ALL DIDN'T DRILL A WELL UP THERE BY THE BANK, NEAR ITS PROPERTY?

BERNIE HAYES: AGAIN, LET'S KEEP THIS IN PROSPECTIVE. MORE WELLS WOULD
ONLY TELL US - - -

LARRY CRUMP: THE BANK IS IN PROSPECTIVE HERE. AS I'M ASKING QUESTIONS
I WOULD LIKE TO HAVE ANSWERS FOR AND I DON'T WANT TO BE BEAT AROUND THE BUSH
ABOUT IT.

BERNIE HAYES: SOME OF THE THINGS THAT Y'ALL ARE BRING UP ARE THINGS WE CAN'T ANSWER RIGHT NOW. YOUR

OPINION IS AND THE COMMENTS THAT YOU'RE EXPRESSING HERE ARE THAT WE DIDN'T DO ENOUGH TO INVESTIGATE CERTAIN ASPECTS OF THIS SITE. THAT MAY BE. ALL WE CAN TELL YOU IS WE'LL GO BACK, WE'LL LOOK AT THE DATA THAT WE HAVE, WE'LL HAVE OTHER PEOPLE LOOK AT THE DATA THAT WE HAVE AND SEE IF IN FACT THAT IS THE CASE. BUT FOR US TO SIT HERE AND TELL YOU THAT BECAUSE OF YOUR CONCERNS ABOUT THE EXTENT AND THE INVESTIGATION THAT WAS DONE OR THE LACK OF IT THAT WE'RE GOING TO GO OUT AND DO MORE WORK, IT WOULDN'T BE A GOOD IDEA FOR US SPENDING YOUR MONEY TO MAKE A BLANKET COMMITMENT TO THAT RIGHT HERE TONIGHT WITHOUT GOING BACK AND LOOKING AT THE SITUATION AND LOOKING AT THE DATA THAT WE HAVE. SO AGAIN, I'LL TELL YOU THESE ARE VALID COMMENTS. THERE'S REASON FOR US TO GO BACK AND LOOK AT WHAT WE'VE DONE AND DETERMINE WHETHER OR NOT IN FACT AS YOU ALL HAVE EXPRESSED WE MAYBE SHOULD HAVE DONE MORE. BUT IT WOULD BE IRRESPONSIBLE FOR US TO COMMIT TO YOU OR TO TELL YOU THAT IN FACT THAT'S WHAT WE'RE GOING TO DO SIMPLY ON THE BASIS OF YOUR COMMENTS TONIGHT AND MAKE A SNAP DECISION HERE IN THIS ROOM TO SPEND ANOTHER SEVERAL HUNDRED THOUSANDS DOLLARS OF TAXPAYER MONEY. SO IN A SENSE, WE'RE TRYING TO ANSWER YOUR QUESTIONS, BUT IN ANOTHER SENSE WHEN YOU SAY WE HAVEN'T DONE ENOUGH AND WE NEED TO DO MORE, WE CAN'T ANSWER THAT TONIGHT OTHER THAN TO SAY

THOSE ARE THE KIND OF COMMENTS WE WANT TO HEAR AND WE'LL GO BACK AND WE'LL LOOK AT THE DATA WE HAVE AND TRY TO MAKE A DECISION WHETHER THAT IN FACT IS THE CASE. AND THAT'S WHAT WE'LL DO.

LARRY CRUMP: HOW WILL WE KNOW WHAT THAT DECISION WILL BE?

BERNIE HAYES: WELL, THERE WILL BE OTHER PUBLIC MEETINGS AND OTHER OPPORTUNITIES FOR PUBLIC PARTICIPATION.

LARRY CRUMP: THIS IS NOT THE FINAL ONE?

BERNIE HAYES: NO, BY NO MEANS.

JERRY COLLINS: HAS ANYONE IN THE EPA WHEN THEY HAD THE MEETINGS IN THE MINUTES AND RECORDS, HAS ANYONE IN THE EPA EVER RECOMMENDED REMOVING OF THAT SOIL. NOWHERE IN HERE DOES IT SAY ANYTHING ABOUT REMOVING THE SOIL. AND IT SAYS OPTIONS THAT THEY SAID WERE UNSATISFACTORY ABOUT LIKE LEAVING IT DORMANT, NOT DOING ANYTHING WITH IT. THAT'S UNSATISFACTORY. THE FIRST TWO CHOICES WERE UNSATISFACTORY. WAS REMOVAL OF THE SOIL EVER BROUGH UP BY SOMEONE ON THE EPA COMMITTEE OR WHOEVER, BY AN OUTSIDER? IS THERE ANY PUBLIC RECORDS OF ANYBODY SUGGESTING THAT THE SOIL BE REMOVED?

BERNIE HAYES: SANDY, CAN YOU - - -

SANDY MYERS: AGAIN, WE'D HAVE TO GO BACK AND LOOK THROUGH THE RECORDS TO SEE.

JERRY COLLINS: TO MY UNDERSTANDING I GUESS I CAN SEE THAT IT WOULD BE VERY EXPENSIVE TO REMOVE THAT SOIL AND THEN YOU HAVE TO TAKE THAT SOIL TO ANOTHER FACILITY AND BURY IT.

TONY JANNETTA: DO YOU BURY IT OR DO YOU INCINERATE IT?

SANDY MYERS: THAT'S A QUESTION THAT WOULD BE ANSWERED IN THE FEASIBILITY STUDY WHERE WE GO IN AND LOOK AT DIFFERENT ALTERNATIVES.

TONY JANNETTA: ISN'T THERE TECHNOLOGY THAT IF YOU'VE GOT CONTAMINATED SOIL, WE DON'T KNOW IT, YOU CAN'T OBLIGATE WHAT METHOD WOULD BE USED?

SANDY MYERS: YES. THERE ARE ALTERNATIVES TO CLEAN UP CONTAMINATED SOIL.

TONY JANNETTA: WE HAD A SCHOOL HERE THAT HAD BURIED TANKS, AND

THE
SOIL WAS DUG UP AND INCINERATED AND BROUGHT IT BACK TO LIFE WHERE
YOU COULD
REUSE IT AGAIN. SO I'M SURE TECHNOLOGY IS THERE.

SANDY MYERS: YES. THERE ARE OPTIONS. THERE ARE TECHNOLOGIES
AVAILABLE TO CLEAN UP CONTAMINATED SOIL.

TONY JANNETTA: IT SOUNDS LIKE TO ME YOU'RE LEAVING SOMETHING
UNDONE.

JERRY COLLINS: IT SOUNDS TO ME LIKE THERE'S A LITTLE BIT OF LET'S GET
THIS SMOOTHED OVER, LET'S GET IT OUT OF THE WAY HERE. LET'S LET THESE
PEOPLE THINK THAT

EVERYTHING'S BEING TAKEN CARE OF.

SANDY MYERS: I CERTAINLY RESPECT YOUR OPINION.

JERRY COLLINS: THE SOIL IS A PRIMARY CONCERN, ISSUE. SURE YOU WANT
THAT WATER CLEANED UP, BUT WHAT'S CAUSING THAT WATER. IT'S THE
CHEMICAL
THAT IS STILL LEFT IN THAT SOIL.

TONY JANNETTA: IT'S A SPONGE, THE SOIL.

JERRY COLLINS: YOU CAN THINK OF IT - - -

BILL RUTLEDGE: I'M BILL RUTLEDGE, AND I'D JUST LIKE TO SAY A COUPLE OF
THINGS, MAYBE IT WILL HELP. SOME OF THESE FOLKS HAVE A BETTER
UNDERSTANDING. PART OF THEIR CONCERN I THINK IS CAUSED BY LACK OF
KNOWLEDGE
 AND UNDERSTANDING AT JUST WHAT HAS BEEN DONE AND WHAT'S PLANNE
FOR THE
FUTURE. A LOT OF TESTING OF SOIL FOLLOWED THE REMOVAL OF THE LIQUIDS
ON
SITE, AND SOIL HAS BEEN REMOVED. AND WHAT HAS BEEN DONE IS EXACTLY
WHAT THE
GENTLEMAN SAID WHY WOULDN'T IT BE DONE, AND THAT IS TESTING AND
REMOVAL OF
SOME SOIL, EXTENSIVE TESTING OF THE SITE BEHIND THE BANK BUILDING THAT
YOU
HAVE CUT OUT THERE. THERE'S TWO SEPARATE SITES FOR THE BANK, IF I
MIGHT
JUST ADDRESS THAT IN A POSITIVE WAY, WAS NEVER OWNED OR CONTROLLED
IN ANY
WAY BY THE CHEMICAL COMPANY. THE FRONT SITE THAT'S ON THE HIGHWAY,
THE SITE
BEHIND IT WAS A LOW - - - AND IT WAS USED AS A FILL OF CONSTRUCTION
MATERIAL
ABOUT FOUR OR FIVE DRUMS OF STILL

BOTTOMS, WHICH WAS PAINTS OR DYES, GOT OVER THERE AND THEY PROBABLY HAD TEN OR FIFTEEN GALLONS OF DRIED - - - IF YOU'VE EVER HAD AN OLD PAINT CAN AND IT DRIED OUT, YOU KNOW WHAT I'M TAKING ABOUT, WHAT'S LEFT AFTER ALL THE SOLVENTS AND LIQUIDS HAVE DISSIPATED. AND THAT'S EXACTLY WHAT WAS BEHIND WHAT IS NOW THE VACANT BANK BUILDING. IT WASN'T BURIED THERE AS A DUMP. I DON'T LIKE THAT MIDNIGHT DUMPING. I SAY THAT IN HUMOR BECAUSE I KNOW WHAT YOU'RE TALKING ABOUT. IT WAS JUST ONE OF THOSE THINGS. I WAS IN THE CONSTRUCTION BUSINESS. WE WERE DUMPING ASPHALT BACK THERE. WE WERE DUMPING ROCKS. WE WERE DUMPING SAND, DIRT, AND WHATNOT, AND THAT'S ALL THAT GOT BACK THERE. THAT WAS NOT FOUND WHEN THEY DUG THE FOUNDATIONS. LAW ENGINEERING WENT BACK IN THERE TO DO SOME SITE STUDIES WITH DRILLING EQUIPMENT. THESE DRUMS WERE FOUND, SOME OF THEM, AND THEY WERE IN DIFFERENT LOCATIONS. THEY WEREN'T CONCENTRATED. SO THE BANK DECIDED JUST TO GO IN THERE AND STRIP THE WHOLE SITE. THEY STRIPPED THAT WHOLE SITE, TOOK THE DIRT OUT, HAULED PART OF IT TO THE FILL DOWNSTATE AND PART OF IT TO THE COUNTY LANDFILL. AND THEY HAULED IN RED CLAY ON THAT SITE. THEY DID EXTENSIVE SOIL TESTING TO DETERMINE AT WHAT LEVEL THEY QUIT EXCAVATING. AND EPA AND DHEC WERE ON SITE. IT WAS MONITORED. I THOUGHT THEY DID AN AWFUL LOT MYSELF, AND ALSO ON THE SITE NEXT DOOR WE DID

THE SAME THING. WE EXCAVATED AND HAULED OUT. SO THERE HAS TO BE SOME BOUNDARY SOMEWHERE. SO A LOT OF TIME, MONEY, AND EFFORT HAS BEEN PUT FORTH TO GET IT TO THE POINT THAT IT IS. THERE'S NO WAY ANY SOIL, IF YOU JUST GO ON ANY SOIL ALMOST YOU FIND IN ANYWHERE, THERE ARE SOME LEVELS OF CONTAMINATION. SOME OF THEM ARE METALS. WE FIND SILVER, MANGANESE, IRON IN SOILS. AND SOME OF THEM ARE AT A - - - YOU HAVE TO SAY THERE'S AN ACCEPTABLE LEVEL. YOU CAN'T GUARANTEE ANYTHING AND EVERYTHING. WHEN WE WALK OUT OF HERE TONIGHT, THE ROADS HAVE BEEN PROVIDED FOR OUR SAFETY, THE STOP SIGNS, THE HIGHWAY PATROL; BUT IT DOESN'T GUARANTEE ME SAFE

PASSAGE
HOME. I MAY BE KILLED BEFORE I GET THERE. SO YOU CAN'T JUST - - - YOU
CAN'T GO TO CHINA TO GET RID OF THE CONTAMINATED SOIL.

JERRY COLLINS: YOU'RE MR. RUTLEDGE?

BILL RUTLEDGE: YOU NEED TO ADDRESS THEM IF YOU HAVE A QUESTION.

JERRY COLLINS: IS THIS MR. RUTLEDGE HERE?

BILL RUTLEDGE: I AM BILL RUTLEDGE.

JERRY COLLINS: DO YOU OWN THIS PROPERTY?

BILL RUTLEDGE: THE CORPORATION OWNS THE PROPERTY. I DON'T.

JERRY COLLINS: DO YOU OWN THE CORPORATION?

SANDY MYERS: LET'S NOT GET INTO A DEBATE - - -

JERRY COLLINS: WHAT I'M GETTING AT, IT SOUNDS VERY CONVINCING, BUT I
BELIEVE THIS MAN OWNS THIS PROPERTY. AND THAT FROM WHAT I'VE READ IS
MR.
RUTLEDGE AND THE TEN OTHER COMPANIES THAT ARE RESPONSIBLE FOR
DELIVERING THE
CHEMICALS EVEN THOUGH THEY DIDN'T DUMP THE CHEMICALS ON SITE,
THEY'RE
RESPONSIBLE FOR THE CLEANUP COSTS BECAUSE THEY HAVE CONTRIBUTED TO
- -
LIKE ONE OF THEM IS CELANESE, I BELIEVE. CELANESE HERE IN ROCK HILL WAS
PART OF ONE OF THOSE TEN COMPANIES THAT DELIVERED CHEMICALS TO
THEM. SO HIS
STORY SOUNDS VERY GOOD, BUT FROM WHAT I UNDERSTAND HE OWNS THIS
PROPERTY OR
HAS SOMETHING TO DO WITH IT STILL AND HE IS ALSO HAVING TO PAY FOR THIS
CLEANUP. SO DON'T JUST BE FOOLED.

SANDY MYERS: ARE THERE ANY OTHER QUESTIONS OR CONCERNS?

TONY JANNETTA: THE DIFFERENCE IN PRICE BETWEEN AN ON SITE CLEANING
AND
USING THE CITY'S FACILITIES, WHAT WAS THAT DETERMINATION?

SANDY MYERS: IT'S ROUGHLY HALF. TREATING ON SITE WAS ABOUT IN THE
NEIGHBORHOOD OF FOUR MILLION DOLLARS AND DIRECT DISCHARGE WAS
ABOUT TWO
MILLION DOLLARS.

TONY JANNETTA: YOU KNOW, THE CITY HAS A NEW POLICY NOW. BACK
THEN
WHEN THEY DID IT, WHEN THE CHEMICAL COMPANIES WERE AROUND, THEY DID

IT THEIR
WAY. THE CITIES DID NOT HAVE THE REGULATIONS THAT THEY HAVE NOW.

THE REGULATIONS ARE CHANGING AS OF TODAY, DAY TO DAY. CHEMICAL
COMPANIES
NOW HAVE TO TREAT THEIR WASTE TO AN ACCEPTABLE CITY STANDARDS,
STATE
STANDARDS, BEFORE IT'S DUMPED INTO THE CITY'S SEWER SYSTEM. THIS IS
WHERE I
GO BACK IF YOU TREAT IT ON SITE TO AN ACCEPTABLE LEVEL PRIOR TO
DUMPING IT
IN THE CITY SEWER SYSTEM THAT'S NOW BEING USED THAT IS NOW BEING
ADDRESSED
TO OTHER COMPANIES THAT ARE ESTABLISHING HERE IN ROCK HILL, THAT
WOULD
PROVIDE OUR SAFEGUARD IN ADDITION TO THE CITY'S TREATMENT SYSTEM.

SANDY MYERS: I APPRECIATE YOUR COMMENT. ARE THERE ANY OTHER
QUESTIONS?

JERRY COLLINS: I HAVE JUST ONE QUESTION RELATED TO WHAT I SAID
ABOUT
THE TEN COMPANIES THAT ARE GOING TO BE RESPONSIBLE FOR CLEANING UP.
HOW
COME THIS HAS NOT BEEN BROUGHT UP AS FAR AS WHO IS PAYING FOR THIS?
IT'S
NOT THE CITY OF ROCK HILL THAT'S GOING TO PAY FOR THIS?

MARK DAVIS: NO. IT IS NOT. THE PARTIES RESPONSIBLE FOR THE
CONTAMINATION WILL PAY FOR ALL THE COSTS, ALL THE PAST COSTS, ALL THE
FUTURE
COSTS.

JERRY COLLINS: HE WILL?

MARK DAVIS: ALL THE PARTIES RESPONSIBLE.

JERRY COLLINS: WHO ARE THOSE PARTIES?

MARK DAVIS: I THINK YOU MENTIONED TEN OF THOSE - - - TEN COMPANIES
THAT YOU KNEW OF.

JERRY COLLINS: IS BILL RUTLEDGE ONE OF THESE PARTIES?

MARK DAVIS: WE HAVE NOT FILED A LAWSUIT AS OF YET SO I CAN'T NAME
WHO.
WE'RE GOING TO GO AFTER EVERYBODY WHO WE CAN WHO WE CAN RECOVER
MONEY FROM.

JERRY COLLINS: DID THE COMPANY, I WANT TO SAY BILL RUTLEDGE'S COMPANY,
DID THEY ILLEGALLY DUMP THIS CHEMICAL ON THE LOCATION WHERE THE BANK IS AT?

MARK DAVIS: NO.

JERRY COLLINS: THEY DO NOT OWN THAT PROPERTY SO THEY WERE DUMPING IT,
SOMEBODY WAS DUMPING IT ILLEGALLY IF THEY DIDN'T OWN IT.

MARK DAVIS: YOU HAVE TO UNDERSTAND WHEN THIS COMPANY WENT OUT OF
BUSINESS BACK IN 1964, SUPERFUND LAW WAS NOT ENACTED UNTIL 1980. AND AT THE
TIME THEY DID THE DUMPING, THERE WAS NO SUCH THING AS ILLEGAL DUMPING; THEY
JUST DID WHAT WAS COMMON BUSINESS PRACTICE AT THE TIME SO THERE WAS NO
ILLEGAL DUMPING THAT WAS GOING ON. THERE ARE COMPANIES AND THERE ARE
PARTIES OUT THERE WHO ARE RESPONSIBLE FOR THE CONTAMINATION OF IT.

JERRY COLLINS: IS THIS GENTLEMAN ONE OF THEM?

MARK DAVIS: HE IS THE CURRENT OWNER OF THE PROPERTY UNDER THE SUPERFUND LAW - - -

LARRY CRUMP: YOU KNOW IT DOESN'T REALLY MATTER IF MR. RUTLEDGE IS RESPONSIBLE FOR THIS OR NOT. WE'RE NOT

HERE TONIGHT OVER WHO IS TO ARGUE WHO IS RESPONSIBLE. WE'RE TRYING TO CLEAN
IT UP. THIRTY YEARS AGO HE HAD NO KNOWLEDGE OF WHAT COULD BECOME OF
CHEMICALS BEING DUMPED IN THE GROUND. THIS IS 1994. LET'S KEEP THE SUBJECT
IN 1994.

JERRY COLLINS: WHY IS THIS MAN HERE? WHY IS THIS MAN HERE?

LARRY CRUMP: BECAUSE HE CARES EVIDENTLY. I HAVE THE GREATEST RESPECT
AND ADMIRATION FOR HIM BEING HERE TONIGHT.

JERRY COLLINS: HE'S JUST PAINTING A PRETTY PICTURE FOR EVERYBODY.

LARRY CRUMP: WELL, I DON'T THINK HE'S THAT WAY.

BERNIE HAYES: WELL GENTLEMEN, THANKS. THOSE COMMENTS ARE WELL

TAKEN
ON BOTH SIDES SO LET'S NOT FALL INTO A DEBATING SOCIETY HERE.

SANDY MYERS: WE CERTAINLY DON'T WANT TO HAVE A DEBATE BETWEEN THE
DIFFERENT - - - IF THERE ARE NO OTHER QUESTIONS, THEN THIS MEETING IS
ADJOURNED. I APPRECIATE YOUR ATTENDANCE AND YOUR INTEREST.

WHEREUPON, THE MEETING WAS ADJOURNED AT 8:50 P.M.

KATHY STANFORD, CVR-CM
COURT REPORTER

(RECORDED TAPES RETAINED FOR FIFTEEN DAYS FROM DATE OF CERTIFICATION
UNLESS
OTHERWISE REQUESTED)

APPENDIX B

STATE OF SOUTH CAROLINA CONCURRENCE LETTER
RUTLEDGE PROPERTY SUPERFUND SITE

June 14, 1994

John H. Hankinson, Jr.
Regional Administrator
U.S. EPA, Region IV
345 Courtland Street
Atlanta, GA 30365

RE: Rutledge Property - Record of Decision

Dear Mr. Hankinson:

The Department has reviewed the revised Record of Decision (ROD) dated June 2, 1994 for the Rutledge Property site and concurs with the ROD. In concurring with this ROD, the South Carolina Department of Health and Environmental Control (SCDHEC) does not waive any right or authority it may have under federal or state law. SCDHEC reserves any right and authority it may have to require corrective action in accordance with the South Carolina Hazardous Waste Management Act and the South Carolina Pollution Control Act. These rights include, but are not limited to, the right to ensure that all necessary permits are obtained, all clean-up goals and criteria are met, and to take a separate action in the event clean-up goals and criteria are not met. Nothing in the concurrence shall preclude SCDHEC from exercising any administrative, legal and equitable remedies available to require additional response actions in the event that: (1)(a) previously unknown or undetected conditions arise at the site, or (b) SCDHEC receives additional information

not previously available concerning the premises upon which SCDHEC relied in concurring with the selected remedial alternative; and (2) the implementation of the remedial alternative selected in the ROD is no longer protective of public health and the environment.

The State concurs with the selected groundwater remediation alternative of extraction and direct discharge to the local POTW. The State also concurs with the additional investigative work to be completed during the Remedial Design phase. This includes: determining the relationship between th contamination detected in the private wells and the contamination detected in the on-site monitoring wells, collecting additional background surface soil samples to confirm that the variance in manganese is consistent with the environmental setting, and collecting additional surface water and sediment samples to determine if the selected background sample is representative of true background conditions.

State concurrence on this remedial alternative is based on the alternative meeting all applicable clean-up criteria. Concurrence is also contingent upon the results of the additional investigative work to be completed during the Remedial Design phase. Depending on the results of the investigative work, an Explanation of Significant Differences (ESD) and/or ROD Amendment may be required. An ESD and/or ROD Amendment would require State concurrence.

Sincerely,

R. Lewis Shaw, P.E.
Deputy Commissioner
Environmental Quality Control

cc: Hartsill Truesdale
Keith Lindler
Gary Stewart
Richard Haynes
Billy Britton
Al Williams, Catawba EQC